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PROGNOSIS IN PULMONARY TUBERCULOSIS

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The gift of prophecy has always been looked upon with awe and admiration. To the patient consulting a physician, prognosis is far more important than diagnosis. He is more interested in what is going to happen to him than he is in the name of the malady that has gripped him. Prognosis is a science, a logical process of deduction, and an art. From certain objective facts scientifically secured and scientifically interpreted, justifiable logical deductions can be made and the future course of the disease predicted. Over and above this, however, the art of medicine steps in and the physician will have to draw upon imponderables and intangibles and give them due weight in the making of his forecast.

This is not to be a statistical paper. It is practically impossible for an individual engaged wholly in private practice to compete statistically with the many large sanatoria scattered from coast to coast, and statistics are virtually worthless unless they embrace a very large number of patients whose post-sanatorium careers have been carefully followed over a long period of years. It is proposed to discuss here the various elements concerned in the making of a prognosis, their interdependence and relative importance, and to indicate how the physician can most accurately foretell the fate of the patient.

It is but necessary to state by way of completeness that youngsters, especially girls in their teens, offer as a rule a more serious prognosis than do their elders, and that the Jewish race is by far the most resistant to tuberculosis.

Duration of disease has naturally an important bearing on the outcome. If the pathological process has lasted a long time, there may be extensive bilateral involvement with cavity formation, which will necessarily be a grave omen. On the other hand, disease of long duration may have been mainly of the proliferative variety, resulting in extensive fibrosis. This will offer a better prognosis for life, though a poor one from the standpoint of working efficiency. Further reference to this whole matter will be made when the nature of the lesion is considered in more detail.

Evidences of toxemia are of paramount importance in influencing prognosis, especially if these do not diminish or disappear under proper treatment. Of these the most important is unquestionably fever. No case can be said to be inactive as long as this symptom is present. Its gradual subsidence is of good augury; its persistence foretells evil. To be sure, fever may persist for months even under the best therapeutic regime, and one must not expect its disappearance after a few weeks of bed-rest. Its continued presence, however, means that the infection is not yielding to the elements of resistance. Were one forced to rely upon a single factor for prognostic determination (which, fortunately, is not the case), I think that fever would have to be the one selected. Anorexia and poor digestion are bad signs. In a disease in which the body tissues are being over-oxidized and in which, consequently, an overplus of food intake is essential, the patient's inability to ingest and digest this food must be considered a serious handicap. When to this is added inability to secure restful sleep save with the help of hypnotics, the situation becomes all the more serious. Racking cough, uninfluenced by

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treatment, is serious. The basis of treatment is rest, and there are few more violent forms of exercise than constant coughing. Large amounts of positive sputum cannot be associated with improvement and are constantly a menace, as they may lead to the development of a tuberculous laryngitis or a tuberculous enteritis.

Persistently low blood pressure that does not rise when other symptoms seem to be improving is not a good sign. According to Kennedy[1], "Studies prove that for people with very similar blood-pressures, the percentage fall in systolic and diastolic pressures was definitely greater in those who were, or later did, poorly."

The nature of the lesion is unquestionably one of the most important factors upon which to base prognosis. Pottenger[2] well says: "While the major pathological processes may be described as predominantly exudative and predominantly proliferative, the most serious phenomenon in the pathology of tuberculosis, the one which carries with it the possibility of affecting prognosis most unfavorably, is caseation and softening, because this process is responsible for cavity formation and furnishes the source of bacilli, which metastasize by spreading through such natural channels as the bronchi."

The patient with an acute tuberculous pneumonia has, of course, a very grave outlook; for if, as often happens, a very large amount of the exudate is absorbed, almost invariably a nidus of caseation will remain which will result in sloughing and cavity.

It must be borne in mind that almost all stages of tuberculous progress and involution are to be found in a given patient at one and the same time; that there will be present an exudative process, a proliferative process, a softening process, absorption of exudate, fibrosis; and that coincidentally there may be healing disease in one area and progressive disease in another. It must also be realized that no physician is skillful enough to be able to discover the site of all these varied synchronous processes by any known method of physical or x-ray examination. Some can be demonstrated, but, I am sure, only a small proportion.

It is from the necropsy table that we have learned the simultaneously protean nature of the tuberculosis process. We know it is there; during life we cannot demonstrate it. Bearing all these facts in mind, aided by frequent physical examination and carefully interpreted serial x-ray films, we can get a panoramic picture of what is going on even though many of the details must elude us, and therefore we can reach a reasonably accurate conclusion of what the future holds in store. Let it be remembered that all said thus far is stated without reference to collapse therapy.

One of the best indices of decreasing infection or increasing resistance (use whichever term you will) is the blood sedimentation test. I have been using it for ten years and have come to place great faith in it, provided, of course, other concurrent infections can be ruled out. Unfortunately, the sedimentation test is not specific for toxins of the tubercle bacillus. A rise in the rate will often foretell a flare-up before fever or any other symptom appears. I have never known a patient with a falling rate to be doing badly. A very few (the exceptions to the rule) have done well and have recovered while always maintaining a high rate; but on the whole, this test, simple and fool-proof, is probably the most sensitive indicator that we possess of the advance or retreat of the bacillary hordes.

Thus far we have been dealing with objective phenomena. We must now consider a series of conditions more subtle and less tangible, which, however, have a very definite influence on prognosis.

The social condition, the intelligence and the temperament of the patient, all play important roles. The submerged tenth, unless adequate sanatorium treatment is promptly available, will usually lose the fight. In large metropolitan centers prompt hospitalization is usually possible. In rural states like North Carolina, with but one city of 100,000 inhabitants, accommodations are not so easy to secure, and it takes from two to three months to secure admission to our state sanatoria. Those in the higher economic brackets have a proportionately better chance. A certain amount of intelligence is necessary to recovery, and, therefore, influences prognosis. I use *intelligence* as differentiated from *literacy*. Many compara-

1. Kennedy, A. S.: The Prognostic Value of Renal Function Tests in Pulmonary Tuberculosis, Canad. M. A. J., (February) 1935, p. 142.

2. Pottenger, F. M.: Prognosis in Tuberculosis, Ann. Int. Med. (September) 1937, p. 474.

tively illiterate people have a relatively high degree of intelligence. They must be able to understand the nature of their disease, to appreciate the importance of attention to detail in the conduct of treatment, to realize the necessity for self-discipline and sacrifice, and to be willing to give up adequate time to achieving recovery. As the late Dr. Lawrason Brown said: "No fool ever recovers."

Temperamentally, many people are totally unfit to be the victims of tuberculosis. Some are so panicky that they literally worry themselves to death and cannot take a normal view of anything. Some accept things in a dull, apathetic sort of way but never really try to know what it is all about. Some are over-confident and can never be persuaded that there is anything the matter with them; they trust neither physician nor nurse and when *they* think that they have taken the cure long enough, off they go. And, verily, they have their reward! Some are openly rebellious at the trick they feel Fate has played them, and, figuratively, beat their heads against the wall. It doesn't harm the wall, but it hurts the head!

Of course, these are the attitudes of aberrant patients and thereby their prognosis is enormously influenced. The type of patient whose temperament merits a good prognosis is one having a reasonable fear of his disease —not great enough to result in panic but sufficient to compel him to sacrifice everything to the business of getting well. He must possess a combination of resignation and fighting ability. He must accept unrebelliously the inevitable. He must swallow the bitter pill of months of incapacity and must accept this unwelcome inactivity with good grace. He must, on the other hand, have a fighting side. He must have the "will-to-win" and the determination that an added obstacle placed in his path is simply a further challenge which he must accept. It is a gauntlet thrown down which he must pick up. Such a patient stands a good chance of recovery. It may be added that by his sympathetic interest and by his attention to the details, not only of treatment but also to those psychic and domestic problems which so often beset the tuberculous patient, the conscientious and earnest physician can do much to change a faulty philosophy of life into one which will be of the greatest benefit in furthering recovery and thus materially influence prognosis.

All that has been said thus far has left out of consideration that greatest boon of modern medicine to the moderately and far-advanced case of tuberculosis—collapse therapy. This form of treatment has vastly changed the prognosis for life—although not so much for efficiency, as I will try to show.

Prior to collapse therapy bed-rest was all that could be offered the tuberculous patient with or without a pulmonary cavity. Certainly marvelous results were, and still are, obtained by patient, long-continued bed-rest; but statistics show that, with this treatment alone, about 90 per cent of cavity cases are dead at the end of five years. Despite the best of attention and cooperation, something always happens—a hemorrhage with post-hemorrhagic metastasis, a bronchogenic spread, a tuberculous enteritis, a meningitis or some other complication. With the advent of pneumothorax, physiological rest was added to merely physical rest, cavities were closed and were kept closed, and recovery ensued. In those cases where adhesions prevented a partial pneumothorax from becoming total, the Jacobaeus operation of internal pneumonolysis, so well developed in this country by Dr. Ralph Matson of Portland, Oregon, enabled 72 per cent of partial pneumothoraxes to be transformed into total ones. When pneumothorax failed, partial or total extrapleural thoracoplasty was employed; latterly extrapleural pneumothorax, the pad or plumbage operation, and many others have been used to a greater or lesser extent. But this is not to be a dissertation on collapse therapy; the various methods employed to collapse the lung are mentioned only that it may be realized what strides have been made in keeping the diseased organ at physiological rest and in overcoming that *bete noire* of tuberculosis—the cavity. By the same token, the prognosis of moderately and far-advanced cases has changed enormously; in past years almost utterly hopeless, they now have a good chance for recovery, provided they are fortunate enough to fall into the hands of a first-class thoracic surgeon and provided their disease has not progressed too far bilaterally. Thus many doomed to death in the past have been and are being saved.

Of course, collapse therapy has been run into the ground. Credit is given to collapse measures in many instances in which the lesions would probably have healed under hygienic measures alone. The use of pneumothorax in those early cases in which the patient is really able to make his own com-

pensation adds to the prestige of that type of therapy, when, in reality, a similar result could have been obtained without it. The effect is to brand the prognosis in most cases of tuberculosis as unfavorable unless collapse therapy is used. Prognosis has a right to be, in a measure, based on treatment; but, in my opinion, it is not warranted to collapse early lesions without cavity formation.

A few words are necessary concerning prognosis for economic recovery. As an example: A stevedore or a baggage man at the railway station develops tuberculosis. Pneumothorax is tried and fails. His lesions being essentially fibrotic, his general condition being good and his vital capacity not seriously impaired, with heart and circulation satisfactory, he is subjected to a thoracoplasty. He recovers, and is free of bacillary sputum, fever and cough. In short, his disease has been brought to a standstill. Can he now resume his work? By no means, nor will he ever be able to take up his former calling. Being in most instances a man of limited intelligence and capacity, he knows not where to turn, and his disability is just as great with his disease arrested as it was when it was active. It is in such cases that the rehabilitation program sponsored by the National Tuberculosis Association and by many state tuberculosis associations proves of greatest value.

It must be realized that the wide use of surgery in the treatment of tuberculosis results often in clinical arrest of disease, but also in a permanent crippling of the patient, through no fault of the surgeon, but because of the pre-operative toll taken by the duration of the illness and the extent of involvement and because of the mechanical insult necessitated by the operation, which alone could snuff out the disease process and prolong life. Therefore, in making prognosis, it is necessary to consider two elements: first, prognosis as to life; and second, prognosis as to a return to working efficiency. In many instances, from the practical standpoint, the second is quite as important as the first. Helping hands are being held out to the unfortunate individual who, having had his life saved, is forced to turn from loading cases of goods on shipboard to weaving baskets in his two-room apartment. Many more helping hands are still needed, for the skill of the surgeon is saving hundreds who will become public charges unless their future occupational life can be properly adjusted. It is a large problem and one in which treatment is fast outstripping working rehabilitation.

This discussion of prognosis has been, perhaps, a bit haphazard, and has, I realize, but touched the high spots. I hope, however, that I have been able to show how many facets this prognostic stone possesses, how important they all are, how much they must be considered by the physician whose responsibility it is to make the forecast, and how intensely important the verdict is to the suffering man or woman who relies on medical knowledge, judgment and acumen to tell him or her what is ahead. Prognosis is a fascinating process. In probably no other medical activity does individualism count so much. Possibly nowhere in medical practice does experience count for more. Perhaps never will prognosis become an exact science, and therein lies its lure and its charm. Certainly to no branch of the healing art is the old Hippocratic aphorism more applicable:

"Life is short and the art long,
The occasion fleeting,
Experience fallacious,
And judgment difficult."

SOME ASPECTS OF ACUTE CORONARY OCCLUSION, WITH REPORT OF CASES

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The purpose of this paper is twofold: First, to direct the physician's attention to the possibility of diagnosing coronary artery disease from the history and physical examination of the patient, and to a realization that some people spend a lifetime weaving the pattern leading to this fatal development; second, to report a group of 22 cases that illustrate almost every symptom, diagnostic sign, and complication that are reported in the literature to date[1]. I believe that fundamental anatomic and physiologic changes occur in the myocardium long before any major symptoms are found. Certain common symptoms related by patients to the physician in his daily practice should rouse his suspicions. The patient, during this preclinical period, may complain of the following symptoms: fatigability, tired feel-

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ing in his legs, insomnia, vertigo, gastric distress, drowsiness, hallucinations of sight, hearing, and smell, substernal discomfort, and—probably the most important feature of this syndrome—breathlessness. Other important subjective symptoms are heart flutter, skipping beats, thumping, and palpitation after physical effort or after meals, followed by substernal discomfort, which often comes on during the night. In the cases reported well over half of the patients were under my care for a period of three or more years, and over 90 per cent of the symptoms above listed were related to me before the attack of acute coronary occlusion. Indigestion (flatulence with slight pressure in the chest) is a common symptom of patients past the age of 50, and often these patients have to be convinced that their hearts, and not their stomachs may be at fault[2].

History

The relationship of obstruction of the coronary arteries to certain forms of cardiac disturbance has long been known. William Harvey described a characteristic case in which the postmortem examination revealed rupture of the wall of the left ventricle following an infarction of the heart muscle. Although interest in the condition is of recent date, it may be noted that as long ago as 1878 Hammer made a correct diagnosis of thrombotic occlusion of a coronary artery during life, and verified the diagnosis at autopsy[3]. Herrick, in 1912, and in later publications on the subject, opened the way for subsequent developments in this field of medicine[4]. Widespread interest in the subject was evidenced, and extensive investigations were made of the anatomy, physiology, and pathology of the coronary arteries. These have been followed by experimental and clinical electrocardiographic studies, along with a careful clinical survey of the various aspects of coronary artery disease[5].

Gross and Microscopic Pathology

The essential pathology of coronary occlusion is the production of an infarct of the heart muscle—an anemic or ischemic necrosis due to extreme narrowing of one of the coronary arteries, which may be sudden or gradual and may or may not be associated with a thrombosis of the artery[6]. The occlusion may be produced in one of the following four ways: (1) by an arteriosclerotic atheromatous narrowing of the blood vessel; (2) by thrombosis in an already sclerotic artery; (3) by syphilitic aortitis of the root of the aorta, which seals the mouths of the coronaries; (4) in rare cases by emboli from vegetations on the valves, which block a vessel.

The vessel most commonly affected is the anterior descending branch of the left coronary artery, so that the area involved includes the anterior part of the wall of the left ventricle. When the right coronary artery is occluded, the infarct includes the posterior half of the interventricular septum and the posterior part of the wall of the left ventricle, with little or no involvement of the right ventricle[7]. If death has been instantaneous, there will of course be no infarct. Grossly the areas are irregular in shape, and pale yellow in color, often surrounded by a red zone. Large infarcts may undergo softening and lead to a rupture of the heart. If the endocardial surface is involved, a thrombus will be formed on the necrotic area; and if the pericardial surface is involved, there will be a patch of pericarditis. Should the patient survive for some time, the weakened area may gradually give way and bulge outward, so that an aneurysm of the heart is formed, with marked thinning of the ventricular wall. The aneurysm usually involves the anterior wall of the left ventricle near the apex. No doubt, many so-called second or third attacks of coronary occlusion with fatal results are, in reality, a rupture of the weakened wall at the site of the aneurysm.

The microscopic pathology depends on the duration of the lesion. If death is immediate, there is no time for necrosis. Should the patient survive for some days, the muscle fibers in the ischemic area swell up and undergo disintegration. The lesion is invaded by polymorphonuclear leukocytes, so that it may resemble an abscess. The vessels of the part are acutely distended, owing to attempts to establish a collateral circulation. The dead muscle is gradually removed and replaced, first by an open granulation

1. Levy, Robert L.: Diseases of the Coronary Arteries and Cardiac Pain, New York, Macmillan Co., 1936.
2. Bierring, W. L.: Early Recognition of Myocardial Disease, Ann. Int. Med. 8:497 (October) 1934.
3. Boyd, William: Pathology Internal Diseases, ed. 2, Philadelphia, Lea and Febiger, p. 65.
4. Herrick, J. B.: Clinical Features of Sudden Obstruction of Coronary Arteries, J. A. M. A. 19:2015, 1912.
5. Beckman: Treatment General Practice, ed. 2, Philadelphia, W. B. Saunders, p. 549.
6. Whitten, in Arch. Int. Med. 45:383. 1930.
7. Boyd, William: Textbook of Pathology, Philadelphia, Lea and Febiger, 1938, p. 852.

tissue rich in blood vessels, and later by fully formed scar tissue, which may seriously interfere with the efficiency of the heart. Blood pigment in an old scarred area suggests a former infarct. Gradual occlusion of the coronaries—for example myocardial scarring without the production of an infarct—will finally lead to the same microscopic picture. In this case, the muscle fibers gradually die and are replaced by fibrous tissue; some pathologists call such a condition chronic interstitial myocarditis. No blood pigment is found in these lesions. The branches of the large coronaries form what are known as terminal arteries; each supplies a separate region of the heart musculature. Though some anastomosis does exist, it appears to be too incomplete to allow a collateral circulation of any extent to be established when one of the main arteries is occluded[8].

Symptoms and Signs

Coronary occlusion can and does occur under almost any set of circumstances, whether the patient is at work, play, or rest; this onset is in contradistinction to the onset of angina pectoris, which most often is precipitated by an emotional or physical exertion. The onset of coronary occlusion is not necessarily marked by extreme pain, and the symptoms may be so insignificant that the patient does not even seek the advice of a physician. The most common signs and symptoms may be divided into those occurring (1) as immediate, and (2) as delayed effects. The first group includes sudden death, pain, and the syndrome of heart failure with shock and collapse. In the patients who succumb rapidly there may not even be time for the complaint of pain. In such cases the damage is so great that ventricular fibrillation probably results, with immediate death.

As stated above, pain is not always encountered; but when it is present, it is usually described as a gripping, vice-like, crushing pain in the lower sternum and epigastrium. Often it becomes more diffuse, and may spread to any part of the anterior or posterior portion of the chest, to the arms, neck, and head. The lower sternum is usually the starting point of the pain, whereas in angina of effort, the pain is most often precordial. During the pain the patient may be very restless, sometimes rolling about in agony. The pain is usually accompanied by a state bordering on collapse. The patient is pale, haggard, anxious, weak, and often sweating profusely. When this pallor is associated with cyanosis, the face assumes a light blue-grey ashen color that is often described as being characteristic of the malady. In this state of collapse nausea and vomiting are frequent. The pulse is small or absent, the blood pressure lowered—greatly in cases with hypertension. The urine is scanty; sometimes twenty-four hours elapse before micturition. This is probably due to the loss of fluids from sweating and vomiting.

Heart failure may predominate, dyspnea being the chief symptom instead of pain. The degree of myocardial damage and the state of the remaining cardiac muscle are the factors which determine the amount of failure present. The heart sounds are indistinct; gallop rhythm is frequent; a systolic murmur may appear in the apical region; the heart may exhibit extrasystoles, paroxysmal tachycardia, or auricular fibrillation. In rare cases the ventricular septum is involved, and heart block may appear. The above signs and symptoms in the examination of the heart, arteries, and veins are usually far less marked than would be expected from the suffering and the obviously grave condition of the patient. Cheyne-Stokes breathing is common. Signs of pulmonary edema and congestion overshadow the systemic venous congestion. There may be a persistent cough with frothy, sticky, blood-tinged sputum. Moist rales and rhonchi appear in the lungs, usually starting first in the right base. In some cases edema develops rapidly and causes death, as in one of the cases reported in this paper[9].

The delayed signs and symptoms are fever, leukocytosis, perhaps a friction rub, and occasionally embolism and ruptured heart. The fever is usually low, not over 102 F. A practice should be made of taking the rectal temperature; it is often 2-3° higher than the oral temperature, owing to the extreme peripheral heat loss. The onset of temperature may vary from immediately after the attack to the third or fourth day, and in rare cases may continue for three or four weeks. Associated with the death of the muscle and its disintegration, there is

8. Howell: Textbook of Physiology, ed. 12, Philadelphia, W. B. Saunders, p. 586.

9. Lewis, Sir Thomas: Diseases of Heart, ed. 2, New York, Macmillan, 1937, p. 44.

usually a leukocytosis along with the fever. The white cell count may vary from 12,000 to 25,000.

The weakness of the ventricular wall, which is greatest during the second week after the attack, is responsible for rupture of the ventricular wall, with hematopericardium and rapid death. This accident rarely occurs before the fifth day or after the fifth week.

The clot that usually forms on the affected portions of the endocardium may become detached in small or large pieces and cause an embolism. The emboli may enter and plug any artery in the body, but are more common in the systemic than in the pulmonary system. Embolic accidents may give rise to numerous complications, such as hemiplegia, loss of circulation to a limb, or splenic infarction. The presence of considerable albumin with red blood cells in the urine may indicate that emboli are being released from the clot.

When the pericardium rather than the endocardium is involved and the infarction involves the anterior surface of the heart, a friction rub is produced, which usually appears on the second or third day, and may be very transient or may last a few days. This friction rub is a very important diagnostic sign and should be carefully watched for in doubtful cases[10].

Differential Diagnosis

The differentiation of minor forms of coronary occlusion from angina pectoris is extremely difficult but very important. When an angina patient is seized with an attack more severe than usual and coming on while the patient is at rest, the possibility of coronary occlusion must be considered; and if the physician is in doubt, the patient should be given the benefit of a period of absolute rest. In such borderline cases the heart should be carefully and frequently examined for gallop rhythm or pericardial friction rub. The electrocardiogram oftentimes renders its greatest aid in these atypical cases; however alterations in the tracings may be overlooked unless serial tracings are taken. Other diseases besides angina pectoris that must be considered in mild or atypical attacks of coronary occlusion are intercostal neuralgia, nerve root pressure from a mediastinal tumor, tuberculosis of the thoracic vertebrae, herpes zoster, or a hypertrophic osteo-arthritis of the spine. The history and physical examination usually clarify the condition or point to other possibilities.

In cases in which death occurs in a few minutes or hours, the diagnosis may also be confusing. There may be a rupture of the heart due to softening of an infarct or weakening of an old aneurysm. In the aortic group there may be rupture of an aortic aneurysm, either dissecting or saccular. However, coronary occlusion is the commonest cause of sudden cardiac death. In some cases no satisfactory cause can be found antemortem or postmortem[11].

In recent literature mention has been made of an observation that should be helpful in the diagnosis of coronary occlusion. It is pointed out that almost all types of occlusion are associated with pain which is rhythmical and periodical. This pain syndrome has proved invaluable to me in ruling out the presence of extracardiac anginas due to lesions above or below the diaphragm, such as acute gallbladder disease, ruptured peptic ulcer, acute pancreatitis, intestinal obstruction, acute pneumothorax, and pulmonary embolism or infarct. The similarity between the pains of childbirth and the rhythmical periodical pain of coronary occlusion is striking. Great prognostic value should be attached to the course of these pains; for example, the patient usually succumbs who has periodic substernal or epigastric pains which resemble the uterine pains of the pregnant woman just before delivery. Here the bouts of pain become longer and the pain-free rest intervals shorter until there are no pain-free intervals in spite of adequate morphine dosage, and the patient expires. If, however, the cardiac pains resemble those of uterine inertia, which are strong at first and gradually become weaker and further apart, the patient usually recovers from the immediate attack[12].

Roentgenographic examinations are extremely valuable in studying preclinical coronary disease, and in the early diagnosis of acute occlusion where other methods may leave the diagnosis in doubt. The excellent work of George Levene has been substantiated in my cases. Levene pointed out that in coronary disease there is a diminished amplitude of cardiac contractions, especially

10. Smith, Fred M.: Cyclopedia of Medical Surgery, Philadelphia, F. A. Davis, Special Volume III, p. 761.

11. Musser's Internal Medicine, ed. 2, Philadelphia, Lea and Febiger, p. 384.

12. Steinchohn, Peter J., in Ann. Int. Med. vol. 14 (September) 1940.

at the apex, and that the left border of the heart is straight or concave. These findings were elicited by routine fluoroscopy in the series of cases reported in this paper. In the preclinical cases, it seems wise to order for patients who show these abnormalities, with perhaps no other evidence of coronary disease, a period of diminished activities, and to give them the protective ten commandments listed under "treatment"[13].

Treatment

The treatment of coronary occlusion may be divided into two phases: First, treatment of the acute stage, from the beginning of the attack until the patient gets out of bed; second, treatment during the period of convalescence, or during the preclinical stage, where the patient has not yet suffered an acute attack of coronary occlusion.

In the general field of medicine, there is hardly any condition in which it is more difficult to appraise the value of specific measures of therapy than in acute coronary occlusion. Events occur with such dramatic sequence that one may be too ready to attribute them, whether favorable or unfavorable, to the last procedure employed. There are certain methods of treatment that, for the present, meet with general acceptance among cardiologists, and other methods that must be regarded as still in the experimental stage, or at least open to doubt[14].

Of first importance is the relief of pain. This is best obtained by the liberal use of morphine, pantopon, or dilaudid. The amount necessary will vary; but, as Wolferth teaches, the dose is that which is required to control the pain. Often a grain of morphine is given within one hour[15]. To obtain quicker results, I make it a practice to administer the drug intravenously with the atropine. During the early minutes after the onset in critical cases, the patient should not be moved or even undressed. Adrenalin (1-1000 solution) in 0.5 to 1 cc. doses may save a life when the patient is in extreme shock. Coramine has proven very satisfactory as a follow-up to the adrenalin. Usually 1 ampule of coramine is given every six hours during the day.

Oxygen administered by funnel, or, better, by the use of a tent, has proved invaluable in cases giving evidence of decompensation with pulmonary edema, dyspnea, and cyanosis. In some cases oxygen relieves the terrible vice-like pain when morphine fails to control it. Most patients become less restless when oxygen is administered, and this is of utmost importance. Oxygen also tends to relieve the nausea and vomiting, which at times is so distressing.

Complete mental and physical rest is paramount. Frequent tiring examinations should be dispensed with. The use of enemas or catheterization is unwise during the first few days, even though there is no bowel movement or emptying of the bladder.

Aminophylline, given intravenously, seems to be of benefit in some cases during the acute attack, its purpose being to increase the coronary flow and perhaps diminish the area of infarction. After twenty-four hours, it often seems advisable to replace some of the fluids that have been lost. Seven hundred and fifty cubic centimeters of normal saline solution are given intravenously by the drip method, followed in a few hours by 100 cc. of 50 per cent glucose or sucrose solution intravenously.

The rest of the treatment is expectant. Heart block with Adams-Stokes' syndrome is sometimes encountered (as in a case reported in this paper). Adrenalin in 0.5 cc. doses every three to four hours usually controls this condition. Paroxysmal tachycardia with collapse is encountered at times; and in an attempt to prevent this condition, or to prevent auricular fibrillation, I always give 3 grains of quinidine sulfate three times daily for two weeks following the attack. The drug is also life-saving during attacks in doses of 5 grains every four hours. Digitalis is not used except in persistent cases of auricular fibrillation that cannot be controlled with quinidine and in congestive heart failure.

Nursing care is of great importance; above all, the patient must be made comfortable. The diet is very simple and should range between 500 and 750 calories daily, with only liquids administered during the first few days. The patient should have at least eight weeks of absolute bedrest at any price. Stroud thinks the prognosis is better in posterior lesions, and shortens the length of bedrest[16]. After the period of bedrest, the patient should spend about three weeks in the process of getting up; beginning by sitting on the side of the bed or in a chair,

13. Levene, George, et al: Roentgen Diagnosis of Coronary Disease, Am. J. Radiol. 31:588 (May) 1934.
14. Levine, Samuel A.: Clinical Heart Disease, Philadelphia, W. B. Saunders, 1937, p. 148.
15. Wolferth, C. C.: Personal communication.
16. Stroud, William D.: Personal communication.

gradually increasing the time from five minutes twice a day until the patient is out of bed two hours in the morning and two hours in the afternoon. When the patient becomes ambulatory, the return to activities should be gradual; in most cases, he should permanently diminish his activities to some extent.

The treatment during the ambulatory period is simple, but in most respects very difficult. The patient is very apprehensive about his heart, and every pain in the chest frightens him and the family. The restricted activities usually tend to increase nervousness and irritability. In general, the treatment after bedrest and the treatment of a patient with coronary sclerosis who has not suffered an occlusion are the same. Possible harmful effects have been attributed to tobacco[17]. I do believe that tobacco should be omitted, not because of any harm, but because there is no benefit from its use. Patients are allowed to smoke a denicotinized cigarette called "Sano".

The following outline is given to every patient where there is a suspicion of preclinical coronary disease, and to patients recovering from an occlusion. Some patients call them the ten commandments.

1. Rest one-half to one hour after meals. Relax as much as possible; try to sleep. Do not read during this period. Sleep eight to nine hours at night.
2. Do not exert yourself to the point of pain or fatigue.
3. Avoid sexual excesses.
4. Eat plain food. Do not overeat. Eat sparingly of foods that are high in cholesterol, such as eggs, butter, cream, liver, and animal fats.
5. Avoid hurried meals and extremely hot or cold drinks. Use coffee and alcohol in moderation.
6. Avoid effervescent medicines.
7. Avoid any sudden exertion, such as lifting or pulling.
8. Do not walk up hills or stairs, except very slowly with intervals of rest after each step. Avoid walking against the wind or walking in extremely hot or cold weather.
9. Avoid constipation.
10. Avoid hurry, worry, quarrels, and overexertion, either physical or mental[18].

17. English, J. P., et al., in J. A. M. A. 115:1327 (October 19) 1940.
18. Thewlis, M. W.: Preclinical Medicine, Baltimore, Williams and Wilkins, p. 75, 1939.

Report of Cases

Case 1. L. D. W., a white male, 51 years of age, was first seen on April 26, 1938, complaining of gas around the heart accompanied by headaches, belching, chronic constipation, and soreness in the right lower quadrant, with a generalized soreness in the left upper quadrant, and some epigastric discomfort. He had a tired feeling in his legs, fatigue, and occasional skipping of the heart. A feeling of pressure over the entire abdomen was described. The patient stated that he had been well until 1933, when he noticed discomfort in the left upper quadrant, and thought it had some relationship to food. The past history was negative except for an injury in childhood to the lower chest anteriorly.

The physical examination was negative except for a blood pressure ranging from 90 systolic, 60 diastolic to 130 systolic, 80 diastolic. A complete laboratory examination revealed a white cell count of 14,700, with no increase in the sedimentation rate. A basal metabolic reading, urinalysis, blood chemistry, and all other blood studies were in normal limits. X-rays of the heart and lungs, and a gastro-intestinal series were normal. Electrocardiographic tracings were in normal limits, except for a low voltage and amplitude in lead III and notching of the P wave in lead II.

The patient was seen at intervals of one to four weeks, with a complete check-up yearly, including a basal metabolic reading, blood studies, fluoroscopic, and electrocardiographic studies. Improvement was noticed under treatment consisting of a balanced diet (he was warned against overeating), bulk laxative, and aminophylline with phenobarbital, grains 1/4. The systolic pressure continued to range from 90 to 130, with sensations of weakness and dizziness associated with the periods of hypotension. The leukocyte count remained continuously elevated above 10,000, and the electrocardiographic tracings taken twice yearly continued to show a low voltage and amplitude in lead III with notching of the P wave in lead II.

On July 12, 1940, the patient experienced more than the usual amount of discomfort in the left upper quadrant and epigastrium with gaseous eructations. Electrocardiographic tracings revealed no abnormalities not already stated. A gallbladder series

showed normal emptying time after a fatty meal, and no stones were visualized. The patient was advised to rest, and went to his seashore cottage, where he did some fishing. On July 21 he experienced substernal discomfort after lifting and carrying an outboard motor (this is the first history of angina of effort). The following day the patient took an automobile trip, on urgent business, to Washington, D. C., and felt in fair health. He continued the business trip to Richmond, Virginia, on the following day; after a business conference of two hours, he felt very tired and listless with slight substernal discomfort. He went to bed early and had a restful night. The following morning, July 25, he ate breakfast and immediately felt discomfort in the epigastric region with gaseous eructations and slight nausea. Between Richmond and Petersburg, the patient suddenly felt extremely ill and asked the chauffeur to stop and get a package of baking soda. He became very cyanotic, and sweated profusely. He had an intense, vice-like substernal pain, boring in character, accompanied by vomiting and severe dyspnea. He was hurried to a Petersburg hospital and a physician was summoned. Bed rest was advised and a hypodermic of morphine sulfate, grains 1/4, was administered. The patient felt impending death. I was summoned and reached the patient about five hours after the attack. I found him extremely cyanotic, dyspneic, pulseless, and sweating profusely. He was much excited and had projectile vomiting. A hypodermic of atropine sulfate, grains 1/150, and morphine sulfate, grains 1/4 was ordered immediately, and 1/4 grains of morphine and 1/200 grains of atropine were given every half hour until pain was relieved. The patient was put in an oxygen tent. He was much relieved in one hour after a total of 1 grain of morphine was administered. The leukocyte count was 15,500. The temperature was 100.2 F. orally and 102.5 F. rectally. Dr. J. M. Hutcheson, of Richmond, was called in for cardiac consultation and advised that electrocardiographic tracings be taken in two days to substantiate the diagnosis of acute coronary infarction. The patient continued with lessened substernal pain, which radiated to the shoulder blades, arms, neck, and epigastrium, for two days. Treatment consisted chiefly in adequate control of pain with morphine; moderate sedation with barbiturates was given, and oxygen was administered. His recovery was uneventful, except for a bout of substernal pain with moderate cyanosis about nine days later, when oxygen therapy was used with success. Much abdominal discomfort with borborygmi and belching has continued to date. Arthritis of both hands has been a residual complication, and might explain the continued high white cell count. The general rules given above continue to guide the patient, who has occasional days of depression and substernal discomfort. His total bed rest was ten weeks. He was thought to have a rather large area of infarction, although no detectable cardiac decompensation was noted except a few fine rales at the right base posteriorly. The patient also has an increase in the frequency of dropped beats, especially upon lying down. Treatment at the present is entirely symptomatic. Serial electrocardiographic tracings are made at monthly intervals.

Case 2. Mrs. C., seen in July, 1940, illustrates a dramatic case that was not diagnosed until after death. The patient was a well-nourished woman of 58 years. A house call was requested at leisure. The patient did not seem acutely ill, but complained chiefly of shortness of breath with much gas and indigestion. She had a chill, which lasted about five minutes, followed by fever, which on my arrival was 103 F. The skin was dry and hot; there was a slight cough, with a few fine moist rales at the right base posteriorly. A malaria smear was obtained and proved positive for tertian. The Wassermann test was negative. Atabrin treatment was prescribed, and another house call was made at the end of five days; the patient seemed much improved, but still felt a little short of breath, and complained of slight nausea and pain in the back at the costovertebral angle. As the urine showed a few clumps of leukocytes in a centrifuged specimen, urophosphate tablets were prescribed. About one hour after I left the patient, and immediately after she had swallowed the first urophosphate tablet, she fell from a sitting position on the side of the bed to the floor, dead. From the history of dyspnea, slight nausea, and gastric discomfort I believe that this patient died of acute coronary occlusion, or rupture of the heart following an acute occlusion.

Case 3. Mrs. C. H. S., a white female, 58 years of age, was first seen on September

17, 1937, complaining of choking spells with severe pain for the past seven years, which had recently grown much worse, and were usually brought on by the exertion of walking or exercising the arms while giving beauty parlor treatments. Attacks lasted about twenty minutes, radiating from the middle of the chest to the arms, face, and back of the neck. There was much gas with belching. She took a sulfotone tablet four times a day. On closer questioning, the patient stated that she often had to sit on the curb or stand stark still after the attack began. She had pain over the heart and chest, with shortness of breath on effort, and was very constipated. She had been treated for diabetes five years previously with insulin; later the diabetes was controlled by diet alone. Her father had died of heart disease and diabetes. The physical examination was essentially negative, except that the blood picture showed a typical primary pernicious anemia. The patient responded nicely to treatment of the anemia with liver injections. The diabetes remained under control, and the anginal attacks became almost absent. Electrocardiographic tracings revealed a possible old infarct, indicated by a flattened T wave in lead I. The patient continued to improve until July, 1938. While she was sitting on the front porch of a next-door neighbor, she suddenly cried out and vomited a huge amount, and fell from the chair. Upon my arrival within three minutes, she was dead.

Case 4. C. V. E., a white male, 36 years of age, was seized with violent pain in the epigastrium accompanied by shock, cyanosis, vomiting, and profuse sweating. The history and physical examination were negative. Morphine sulfate, grains 1½, was given within twelve hours, along with intravenous aminophylline. He was removed to the hospital, where suspected poisoning was investigated. The pain became generalized over the entire abdomen, with almost board-like rigidity, and a diagnosis of ruptured peptic ulcer was made. Electrocardiographic tracings were made before the scheduled operation, and showed changes extremely suggestive of coronary occlusion. The patient died within an hour after the tracings were made. Autopsy corroborated the clinical and electrocardiographic diagnosis.

Case 5. J. K., a male Negro, 46 years of age, was first seen in February, 1939, with lobar pneumonia. He recovered after sulfapyridine treatment of Type II pneumococcus. During cultures for pneumococcus, it was discovered that the patient had a positive Wassermann reaction. During his convalescence from pneumonia bismuth injections were given intramuscularly, and after six months' treatment the patient felt better than in years, although some substernal discomfort was noticed after slight exertion. Electrocardiographic tracings revealed slight evidence of changes in the coronary arteries. The patient died within four hours after an attack of severe substernal pain, dyspnea, shock, and vomiting. Death might have been caused either by an occlusion of the mouth of the coronaries, due to luetic involvement, or by rupture of a syphilitic aneurysm.

Case 6. F. I., a white male, 56 years of age, was first seen by me on February 28, 1938, suffering from severe substernal pain. The patient had been taking daily between eight and ten 1/100 grain nitroglycerin tablets. Electrocardiographic tracings showed flattening of the T wave in lead I and alterations in the QRS complexes in three leads. The patient seemed extremely nervous and presented a very noticeable purplish flushing of the face. Laboratory studies and physical examination were not remarkable, except for a red cell count of 11,200,000. Venesection at regular intervals, with x-ray therapy of the long bones, has kept the patient free from anginal pain and from any blocking of the terminal coronary arteries to date, as revealed by the electrocardiographic tracings. The tracings remain essentially the same as the first.

Case 7. M. L. B., a white male, 42 years of age, was first seen by me in shock, with severe substernal pain. The patient had suffered two such severe attacks, and had had six weeks' bed rest following each attack. Anginal attacks occurred three or four times a day. The patient carried amyl nitrite ampules and a hypodermic syringe with morphine at all times. During a check-up, the patient revealed x-ray evidence of cholelithiasis after oral dye administration. Electrocardiographic tracings revealed typical evidence of old and new infarcts. Physical and laboratory examinations were essentially negative, except for the patient's obesity. The patient suffered a severe coronary occlusion, which was his fourth attack, and succumbed before a physician could arrive.

Case 8. E. D., a white female, 62 years of

age, was first seen in April, 1940, suffering with severe dyspnea with slight substernal discomfort. Extensive pulmonary edema developed, with hepatic engorgement. Under morphine, aminophylline, and 50 per cent sucrose solution, the patient made excellent progress. On the sixth day of her illness, electrocardiographic tracings revealed evidence of a coronary infarct, most likely of the right coronary artery. Four doses of salyrgan theophylline were given intravenously, with complete clearing up of residual edema at the lung bases; the liver returned to normal size, and a slight ankle and leg edema disappeared. Due to the severity of the attack and the advisability of longer bed rest with occlusion of the right coronary, the patient was kept in bed for three months, and gradually let out of bed. The patient died in her sleep one week after getting up from enforced bed rest.

Case 9. J. O. M., a white male 62 years of age, was first seen on January 30, 1939, complaining of shortness of breath and pain in the epigastrium, with a sensation of pressure and choking. The patient did not seem acutely ill. For the past seven years he had suffered with vague upper abdominal pain. He sleeps on one pillow. His legs hurt at intervals; he had slight ankle edema and erythema of the palmar surfaces of both hands, with prickling sensations. All of the above symptoms were increased on exertion. His past history, habits, and physical examination were essentially normal, except for a blood pressure of 190 systolic, 90 diastolic in the left arm and 196 systolic, 102 diastolic in the right arm, and slight arteriovenous compression in the eye grounds. Electrocardiographic tracings showed left axis deviation, and a fluoroscopic examination revealed a slight cardiac enlargement with diminution of the amplitude and concavity of the left border. Under treatment for hypertension, the patient made remarkable improvement. In May, during excessive family and business disturbances, the patient was seized, while at rest, with severe substernal pain followed by shock, fever, and leukocytosis. Electrocardiographic tracings pointed to occlusion of the anterior descending branch of the left coronary artery. Pulmonary edema of moderate degree developed. Serial electrocardiographic tracings substantiated the diagnosis of acute infarction. The patient responded well to treatment, and after bed rest was referred for another complete checkup to another cardiologist. The patient continued to improve and is in apparent good health at the present time.

Case 10. W. M. H., a white male, 63 years of age, was first seen in consultation on March 3, 1938. His chief complaint was mild pain in the epigastrium, with extreme nausea and vomiting. The physical examination and laboratory studies were essentially negative, except for a blood pressure of 192 systolic, 90 diastolic. Electrocardiographic studies did not reveal definite evidence of coronary artery disease. The patient remained acutely ill for twenty-four hours, and bed rest was advised for five weeks. A second attack, very similar to the initial attack, occurred six weeks after the first illness. The electrocardiographic tracings still remained in doubt. A consultation did not confirm or deny the possibility of coronary occlusion. The patient suffered a third attack, following which there were typical electrocardiographic changes. At this time, the patient had not been out of bed for four months. The fourth attack occurred about five months after the initial attack, and the patient died before a physician could arrive. This case is interesting in that no severe pain was experienced, nausea and vomiting with shock being the chief symptom.

Case 11. D. J. W., a white male 47 years of age, was seen on August 16, 1937, complaining of pain in the left anterior chest wall, which was accentuated by deep breathing. He was not acutely ill, but had a slight cold and feared an attack of pleurisy, which he frequently had. Examination two years previously at a well known clinic had revealed no significant electrocardiographic changes. The physical examination and laboratory studies were normal, except for a blood pressure of 180 systolic, 92 diastolic, and prostatic hypertrophy. The patient was worried about a penile sore which he had had twenty years previously, and requested a spinal fluid Wassermann test. Extensive neurological examination and the spinal fluid test were negative. Electrocardiographic studies revealed marked slurring of the R wave and prolongation of the PR interval; they were otherwise normal. The patient was observed often thereafter for one and one-half years, but advice as to curtailment of activities was generally ignored. In June, 1939, the patient suffered severe pain in the lower substernal area, with marked shock. The pain radiated to both arms and neck;

and profuse perspiration, restlessness, and cyanosis were noted. One grain of morphine was administered within an hour, with much relief. The patient then reached up and grasped the head of the bed with his right hand, and died within ten seconds. Myocardial injection of adrenalin and cardiac massages were of no avail.

Case 12. M. D., a white female 56 years of age, was first seen in consultation in April, 1940, complaining of pain in the epigastrium and lower sternum. She had been under a physician's care for four years, and had been given a diagnosis of angina pectoris; however, this attack had not subsided as promptly as the previous seizures. Electrocardiographic tracings revealed myocardial damage, with some possibility of an old infarction. A complete blood count revealed a hypochromic anemia, which responded well to ferrous sulfate medication, with a lessening of the number of anginal attacks. After her hemoglobin passed 90 per cent, the patient suffered a mild attack of coronary occlusion, substantiated by electrocardiographic tracings. (This case, together with case 3, suggests that too extensive treatment of anemia may precipitate an occlusion of the coronary arteries, owing to the increased viscosity of the blood. However, an anemia would produce, to some degree, myocardial anoxemia, which is detrimental. It seems that, possibly, it would be best to keep a hemoglobin level of between 75 and 85 per cent, with 3,500,000 to 4,000,000 red blood cells.)

Case 13. R. F. C., a white male 79 years of age, was first seen on April 2, 1940, acutely ill with extreme dyspnea almost amounting to orthopnea. He was cyanotic and sweating profusely. There was very little pain, but it was definitely rhythmical in character. The patient seemed much improved within the hour after opiates were administered. There was no evidence of cardiac failure at any time, and no cardiac arrhythmias were noted. The patient wanted to get up the following morning, but a leukocyte count of 14,250 made it seem safer to advise bed rest for a few weeks. The oral temperature never went above 98 F.; however, the rectal temperature reached 100.9 F. Serial cardiograms taken twice weekly revealed typical changes suggesting a myocardial infarct. The patient got along extremely well and was allowed to get out of bed gradually after three weeks; however, he became so despondent over his condition, in spite of reassurance and cheerful family life, that he took his life in May, 1940.

Case 14. W. D. L., a white male 35 years of age, was first seen in September, 1937, complaining chiefly of precordial pain on exertion, with marked dyspnea, and a weight loss of 40 pounds. He gave a history of sixteen months' illness beginning with acute gonorrheal urethritis, followed by an epididymitis. On examination, a loud blowing systolic apical murmur was discovered, along with a soft rumbling presystolic murmur, gradually merging into the systolic murmur. A thorough examination, including electrocardiographic tracings, fluoroscopic examinations, blood cultures, and spinal fluid examinations, led to the diagnosis of mitral valve insufficiency due to gonococcic blood stream infection. A course of sulfanilamide with bed rest was prescribed, with slight beneficial effects. The patient was rather difficult to control. He was seen at intervals of about one month. During one year the mitral systolic murmur changed into a crescendo presystolic murmur, and at times the patient had blood streaked sputum. A tympanic aortic second sound developed, slowly changing into a full-fledged aortic diastolic murmur. The blood pressure readings reached 300 systolic, 0 diastolic, with Corrigan pulse, capillary pulse, Duroziez murmur, visible arterial pulsation, femoral snap, Traube's sign, and visible venous pulse, all denoting a far advanced aortic insufficiency. The cardiac enlargement became tremendous; and as the aortic insufficiency became more pronounced, the slightest exertion brought on intense pain, controlled only by morphine. During two separate severe attacks of pain electrocardiographic tracings were made, with changes indicating infarction of the myocardium. The patient became a morphine addict, taking as much as 12 grains of morphine daily by hypodermic injections. He is now maintained on 6 grains daily. This patient illustrates infarction due to aortic insufficiency where the coronary circulation is insufficient following an anatomic change. He has been a curiosity to many clinics of the eastern seaboard, and has spent much time in teaching hospitals. He has just recently shown signs of cardiac decompensation.

Case 15. E. H. G., a white male 64 years

of age, was seen on April 4, 1938, with lower substernal pain, dyspnea, shock, and cyanosis. Electrocardiographic tracings and laboratory findings corroborated a diagnosis of acute coronary occlusion. Bed rest and minimum drug treatment were prescribed. The patient made an uneventful recovery, and returned to active work on his farm.

Case 16. S. M., a white male 46 years of age, walked into the hospital on May 11, 1938, complaining of substernal pain radiating to the left arm and neck, with slight cyanosis and no nausea or vomiting. Electrocardiographic tracings and the usual examinations substantiated a diagnosis of acute coronary occlusion. The patient of necessity continued an active life, after six weeks' bed rest. Plowing, picking cotton, pulling tobacco, and cutting timber are his daily routine. The patient has occasional pain in the chest, goes to bed for three or four days without consulting a physician, and usually calls by my office two or three times yearly for electrocardiographic tracings.

This case and case 15 illustrate the importance of a lack of emotional strain. Neither of these men have any fear whatsoever of their cardiac condition, and neither can afford rest; it must be remembered, however, that both of these patients probably suffered only a small infarction.

Case 17. T. S., a white male 62 years of age, was first seen in September, 1937, complaining of indigestion, fatigability, and headaches. The physical and laboratory examinations were essentially negative, except for a blood pressure of 192 systolic, 110 diastolic, and a 2 plus reaction for albumin with phenolsulfonphthalein excretion of 45 per cent. Fluoroscopic examination of the chest revealed a diminution of the heart beat at the left border of the apex and marked concavity of the left border. The patient was seen at monthly intervals. On March 15, 1939, the patient was seized with severe dyspnea and collapsed on the street. When he was brought to the hospital, the patient was pulseless and in a state of severe shock. Adrenalin, coramine and oxygen were administered. The patient revived, and within three hours felt and looked well. Electrocardiographic tracings were consistent with a diagnosis of coronary occlusion. Bed rest of six weeks was advised, and the recovery was uneventful.

Case 18. J. W., a white male 68 years of age, was first seen on August 3, 1938. He stated that four weeks previously he had had a sensation of pressure in his chest and head, with shortness of breath, followed by nausea and vomiting. He perspired freely and felt cold and clammy. He stayed in bed for two days. He then had a feeling that his heart was beating too slowly, but felt good otherwise. On physical examination, the blood pressure was found to be 138 systolic, 80 diastolic in both arms, the pulse 46, and the temperature 96 F. Fluoroscopic examination revealed moderate cardiac enlargement, with absent left apex beat. Electrocardiographic tracings revealed changes consistent with an infarction with a partial heart block (the PR interval was .24). His basal metabolic reading was -35. The patient continued to feel well. and electrocardiographic tracings since have shown improvement; a tracing made on June 10, 1940, showed a PR interval of .20, and occasional extrasystoles. The patient could not be persuaded to take any bed rest; and since one month had passed since the attack before he was seen, it seemed most probable that cicatrization was complete.

Case 19. G. C. W., a white male 57 years of age, was first seen in bed on May 1, 1940, complaining of substernal pain, nausea, and weakness. The patient had been suffering from angina of effort for the past three and one-half years, the attacks lasting for ten to fifteen minutes, and sometimes occurring three or four times daily. Nitroglycerin, grains 1/100, under his tongue relieved the attacks. On examination the patient was found to be cyanotic, sweating profusely, and very dyspneic, with fine, moist rales scattered throughout both lung fields. Morphine relieved the pain. Electrocardiographic tracings revealed changes suggesting that the patient had suffered an occlusion. The rectal temperature was 102 F., and the white cell count 21,000. A friction rub was elicited on the third day. The patient made an uneventful recovery. It is interesting to note that the anginal attacks have been much less frequent since the acute coronary occlusion.

Case 20. L. L., a colored female 44 years of age, walked into my office complaining of intense dyspnea with substernal discomfort, not severe. The patient was sweating profusely and was certain that death was near. Her pulse was so rapid and irregular that it could not be counted, and there were moist

rales throughout the lung fields. Morphine and digitalis were given intravenously after electrocardiographic tracings were obtained, showing auricular fibrillation. The patient was given a prescription for quinidine sulfate, grains 5, three times daily, and was told to stay in bed for three weeks. Tracings taken after bed rest revealed an inverted T wave in lead I, with changes in the QRS interval. The auricular fibrillation was controlled before the patient left my office, and has not returned to date. However, the patient continues quinidine, 3 grains at bedtime, for extrasystoles that occur when she is lying down.

Case 21. Mrs. F. F., a white female, 57 years of age, was first seen in August, 1937, about 1 a. m., suffering from severe orthopnea without any pain. Cyanosis was pronounced and there was profuse sweating. She had awakened from sound sleep. The blood pressure was 140 systolic, 90 diastolic. (The family related that she suffered from hypertension.) There was massive pulmonary edema, and the patient was pulseless, with very distant heart sounds. She rapidly became semi-comatose. Adrenalin, coramine, alpha-lobeline, and 50 per cent glucose were given alternately at intervals of thirty minutes. Twice respirations and heart sounds ceased. One cc. of adrenalin was given in both instances into the cardiac muscle by means of a spinal puncture needle, with rapid response. The patient was comfortable for three days, then expired suddenly. Electrocardiographic tracings taken about two hours before death indicated that she had suffered an acute coronary occlusion.

Case 22. J. R., a white male 52 years of age, was first seen on November 5, 1940, complaining of substernal pain, vice-like in character, radiating over the entire abdomen. He was slightly cyanotic, and was sweating profusely. Physical examination was negative except for obvious slight shock. The blood pressure was 90 systolic, 60 diastolic. After ¼ grain of morphine the patient felt better. I advised him to go home and rest one week and return for electrocardiographic tracings. Tracings one week later were suggestive of myocardial infarction, and the patient was finally persuaded to take one month's bed rest[19].

19. Boyd, L. J., and Werblow, S. C.: Coronary Thrombosis Without Pain, Am. J. M. Sc. 194:314 (December) 1937.

Summary and Conclusions

In 22 cases of acute coronary occlusion almost every sign, symptom, complication, and diagnostic problem was encountered.

1. The general practitioner should be able to diagnose these cases correctly in most instances by a careful history and physical examination.
2. More attention should be directed toward recognizing preclinical coronary artery disease before an aucte episode has occurred.
3. These cases verify the value of roentgenographic studies of the heart as an aid to diagnosis in the preclinical and the clinical stages of the diseases.
4. There was, in most cases studied and reported, a definite rhythmical periodical pain in acute coronary occlusion, which is of aid in diagnosis.

CAROTID SINUS SYNDROME

Report of a Case

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The ability to determine correctly the cause of unconsciousness, fainting attacks and convulsions is a matter of great importance, for there is hardly a condition in the field of medicine that disturbs a patient or affects his general morale as much as does the loss of consciousness or a severe attack of vertigo. I will attempt to discuss briefly carotid sinus syndrome, a cause of unconsciousness. Until recently very little was found in the literature relative to this condition.

For some time it has been recognized that the autonomic nervous system plays an important part in the control of the circulation. This system is made up of two sets of afferent nerve fibers arising in the blood vessels throughout the body: first, pressor fibers, which when stimulated cause a vasoconstriction, increased blood pressure and acceleration of the heart; second, depressor fibers, which when stimulated give rise to vasodilation, decreased blood pressure and slowing of the heart. The normal stimulus that

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gives rise to these reflexes is the intravascular pressure. A general increase in blood pressure would stimulate the depressor fibers, setting up a reflex which would result in vasodilation, thus restoring the normal condition. This interplay of pressor and depressor reflexes is so delicate that normally the heart rate and blood pressure are kept at quite constant levels. It has recently been found that a highly specialized part of the pressor-depressor regulatory system is located in the carotid sinuses. Anatomically, the carotid sinus is a bulbous dilation of the internal carotid artery just after it leaves the common carotid. In the adventitial coat of the artery at this point there is a fine plexus of nerve fibers with specialized end organs. These fibers run together to form a definite nerve, the intercarotid, which follows the glossopharyngeal nerve as far as the medulla and enters the vagus nucleus. Other smaller nerves run directly to the superior cervical sympathetic ganglion.

The question has been raised as to whether the symptoms of fainting and convulsions are due to mechanical occlusion of the carotid artery, with a resulting cerebral anemia. Experimentation on animals has revealed that this is not the case, for occlusion of the artery below the sinus not only did not cause such changes, but in some instances resulted in a rise in blood pressure and speeding of the heart presumably due to a decrease in the intra-sinal pressure. Hening showed in 1923 that slowing of the heart could be caused by pressure over the carotid sinus even when the vagus was separated from the artery, thus establishing the fact that a true reflex was involved. The reflex has its afferent limb in the intercarotid nerve, its synapses in the medulla, and its efferent limbs through the vagi and the sympathetic system. Since Hening's discovery much experimental work has been carried out on animals. Some of the facts that have been established are: first, that increased pressure over the carotid sinus causes a slowing of the heart and fall in blood pressure; second, that all these effects are abolished by denervation of the carotid sinus or section of the intercarotid nerves, because the afferent limb of the reflex is destroyed; third, that the reflex has both sympathetic and vagal efferent pathways, the heart rate being determined chiefly by vagal stimulation or inhibition, the vasomotor tone by sympathetic control. The concentration of these fibers in the carotid sinus forms presumably a delicate mechanism for the control of blood entering the brain.

It is recognized that the best method to stimulate a carotid sinus in man is to press on it. The maximal effect of stimulation can be obtained only by pressure directly over the sinus. For best results the head should be tilted slightly backward and to the side; in this position the carotid sinus is usually located behind the angle of the jaw at the level of the upper border of the thyroid cartilage. Weiss in his series of examinations of patients who complained of fainting or dizziness, not explained by any other known pathology, found that pressure on one or both of the carotid sinuses was followed regularly by dizziness, fainting and convulsive movements. Practically all of his patients were above 55 years of age, and as a rule, they showed arteriosclerosis and evidences of coronary or other organic heart disease.

Weiss divided his cases into three groups: first, those showing cardiac standstill or slowing of the heart, with or without marked fall in arterial blood pressure; second, those showing marked fall in blood pressure without pronounced cardiac slowing; third, the younger cases showing extreme paling of the face followed by intense flushing but without much slowing of the heart or fall in blood pressure. In the induced attacks of unconsciousness the blood pressure usually falls sharply. Some authors report that some patients suffer a systolic pressure fall of 50 or more millimeters of mercury. In such cases the diastolic pressure was often too low to be recorded. The heart rate, as a rule, is markedly slowed by mechanical pressure over the sinus. It has been reported that in a few cases the heart could be stopped altogether for an indefinite time. The longest cardiac standstill recorded by Baker was 15-17 seconds. Fainting and convulsions usually come on after an asystole of 7 to 10 seconds.

Robinson, in a study of eight patients exhibiting a hyperactive carotid sinus reflex, made measurements of the venous blood pressure before, during and after the induction of carotid sinus syncope. There was no significant change in venous blood pressure prior to the convulsion. During the convulsion the venous blood pressure tended to rise moderately but promptly returned to its resting level as soon as the muscular activity

ceased. Stimulation of a sensitive carotid sinus by mechanical pressure usually manifests itself by marked changes in the respiration, in addition to the above symptoms. In the case that I will describe later this was one of the earliest symptoms. Breathing becomes deep and labored. This is usually accompanied by a mild degree of uneasiness and apprehension. Electrocardiographic observations on the carotid sinus reflex made by Sigler showed the predominant vagal effects on the heart to be slowing or standstill through stimulation of the sino-auricular node and various grades of auriculoventricular block. Right carotid sinus pressure had a greater tendency to produce complete standstill. Pressure on the left had a greater tendency to produce auriculoventricular block. It is suggested that the variation in response of the right and left nerves, as well as the difference in response in different hearts, is dependent on variations in the number of vagal terminals of the respective nerves in various portions of the heart. The basal metabolic rate in a number of patients studied by various authors has been found to be abnormally low. Even though the patient is unconscious from an induced attack for fifteen or twenty minutes, there seem to be no harmful effects resulting from the procedure.

In order to show that the reflex is an interplay of the vagal and sympathetic components of the autonomic nervous system, Baker administered drugs to act specifically on these components. Adrenalin in sufficient quantity was given to cause strong stimulation of the sympathetic system. It was found that this drug, through its property of stimulating the sympathetic system, increasing the heart rate, increasing blood velocity and blood flow, stimulating the heart muscle directly, and stimulating the accelerator fibers of the heart, counteracted both the cerebral and the cardiac reactions. Atropine paralyzes the parasympathetic or the vagus nerve endings, but does not affect the vasomotor reactions which take place through the sympathetic nervous system. Therefore it was concluded that atropine stops the cardiac effect of carotid pressure but not the cerebral effects. Adrenalin counteracts both the vasomotor cerebral response and the cardiac response. Recent experimental and clinical elaboration of the effects from an abnormally functioning carotid sinus has led the anesthetist and surgeon to be on guard against disturbances that may arise during general anesthesia in a patient with a sensitive carotid sinus.

It is pointed out that digitalis given preoperatively may be dangerous, since it sensitizes the carotid sinus mechanism. Likewise drugs used for narcosis, such as the anesthetic gases, certain barbiturates, and avertin, have an added hazard because they exhibit a similar effect on the reflex. Morphine and ether when the narcosis is not deep may elicit a similar response, and sudden deaths during anesthesia in many instances may be closely related to carotid sinus activity. The method of combatting this condition, when emergency anesthesia is necessary on patients with sensitive carotid sinus, is to inject novocain around the sinus. This seems to prevent the attack. The same holds true for operations on the neck, such as thyroid operations, where the sinus is apt to be stimulated. Novocain injected around the sinus has been a life-saver in several instances. It has been found easy to infiltrate the wall of the carotid sinus with novocain by inserting a fine hypodermic needle into the tissues over the sinus until the wall of the artery could be felt to pulsate against the tip of the needle.

It has been reported that the United States Government is examining its aviators thoroughly in the hope of preventing any possibility of unconscious attacks during flight, and carotid sinus syndrome is one of the conditions searched for.

There is no specific treatment of hyperactive carotid sinus reflexes. Therapy must vary according to the individual case. In those cases with mild symptoms and infrequent attacks no treatment is required other than reassurance. Tobacco, alcohol and coffee should be prohibited until it is determined whether they are responsible. In patients with moderately severe symptoms and more frequent attacks, the patient should be instructed to avoid turning his head quickly, looking upward and stooping suddenly. He should avoid any constriction about the neck.

If the spells are quite severe and occur at intervals sufficiently close to interfere with the patient's work or activity, medication is indicated. The drug most commonly used is atropine. Attacks are usually relieved by daily doses of belladonna, if enough of the drug is given to dry the mouth slightly but not uncomfortably. This, of course, is spe-

cific in the vagus type and has no effect on hypersensitive cerebral reflex. In the cerebral type of sensitivity no specific therapy is available. Drugs that have been used are dilantin, phenobarbital, benzedrine and others.

Stevenson[1] reports five cases where x-ray therapy was used as the only specific type of treatment in hypersensitive carotid sinus, and in this small number of cases it seemed to be of definite prophylactic value.

Where the attacks are severe and thorough medical treatment has been carried out without success, operation is indicated in selected cases. Denervation of the carotid sinus is the operation performed. It is not without danger, especially in older persons.

Case Report

A white female patient, aged 38, was admitted to the State Hospital on July 20, 1940. The commitment paper stated that mental changes had been observed in the patient for five years prior to her commitment. No mention of unconscious attacks or convulsions was made in the commitment paper. The anamnesis obtained at the time of the patient's admission to the hospital stated that the patient's mind had been growing gradually worse for the past fifteen years, and that she had been placed in the county home because her mother could no longer care for her. She ran away from home, knocked out window panes, and wandered all over the country. The anamnesis made no mention of unconscious attacks or convulsions.

The mental examination of the patient made a short while after her admission to the hospital readily revealed that she was of a low order of intelligence, and no doubt congenitally deficient. When she was admitted to the hospital there was a large bruise on her forehead, and it was learned from her that she had been having some form of falling spells for some time and that she had injured her head when she fell in one of the attacks. The nurse on the patient's ward described the attacks to the examiner as follows: "She appears to faint away, is apparently unconscious, cannot be aroused and occasionally rolls from her bed to the floor. She has not been seen to chew the tongue or froth at the mouth, nor was there any jerking of any of the muscles of the body. She has passed her urine during the attacks."

The patient stated that she had fits when a baby, but that she had had no "spells" since then until one year ago. One year prior to her admission to the State Hospital, while she was in a general hospital for an abdominal operation, she had three fainting attacks. She had no more until the first of this year, when she began having fainting spells again. She had been having them almost daily until her admission to the hospital. She stated that she remembered nothing that happened during the attack and that some of the attacks lasted as long as twenty to thirty minutes, while others lasted for just a few minutes. She said there was no aura or other sensations before the attack. The only thing she knew was that she just felt weak and fainted away. She did say that sometimes after the attack her head ached, but that her mind was always as clear as usual after regaining consciousness.

The physical findings were essentially negative except for a slow pulse rate (60 per minute) and a blood pressure of 160 systolic, 100 diastolic. The heart was normal, and all the reflexes were essentially negative. The eye grounds were apparently normal. The blood studies, including a blood count, hemoglobin determination, blood bromide and blood Wassermann tests, were negative. The urine was also negative.

It was found that by pressure over the carotid sinus the above described attacks could be brought on. The right side of the neck seemed to be the most sensitive side. When the attack was brought on, her eyes would open wide, she would glance anxiously around the room, and had an appearance of uneasiness; breathing became labored, and she would fall over unconscious. The attacks would last sometimes for three or four minutes, sometimes for ten or fifteen minutes. During the time she was unconscious her breathing was very slow and shallow, her respirations dropped to 7 or 8 per minute, the pulse rate dropped from 60 to 40 per minute, the blood pressure dropped from 160 systolic, 100 diastolic to 130 systolic, 60 diastolic, the pupils were dilated and there was no pupillary action. In order to determine if this was a true carotid sinus manifestation 1/100 grain of atropine sulfate was given hypodermically. After a short while pressure was made over the carotid sinus and no attack could be produced. On

1. Stevenson: Use of Roentgen Therapy in Carotid Sinus Syndrome. J. Radiol., February, 1939.

another occasion, an attack was induced by pressure over the sinus, similar in all respects to others described. When unconsciousness was complete, 1/100 grain of atropine was given; she immediately awakenened, looked around in a silly embarrassed manner for an instant, and seemed perfectly clear mentally. She had no recollection of anything which had occurred except that she recalled a sensation of just "fainting away".

Summary

1. Carotid sinus syndrome, in varying intensity, is a fairly common condition.
2. The symptoms vary from a mild feeling of faintness and flushing to complete unconsciousness and convulsive disorders.
3. It is a proven reflex, with the seat of peripheral stimulation being located in the carotid sinus of the carotid artery.
4. It is usually associated with arteriosclerosis or coronary artery disease, and most often occurs in later life.
5. Most attacks can be relieved by atropine, and the tendency to attacks can be prevented by daily administration of small doses of belladonna.

TINEA FAVOSA OF THE SCALP

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SHERWOOD W. BAREFOOT, M. D.
and
NORMAN F. CONANT, PH. D.

Although in recent years several cases of tinea favosa of the scalp have been reported in native-born Americans[1] the number is relatively small when compared with the incidence of the disease in foreign-born Americans. Most of the cases reported among native-born Americans are in the offspring of foreign-born parents who have, or have had the disease[2], and in many of the other cases there are known sources of infection—for example, relatives with whom there is contact. In view of the present accepted concept—that favus was probably unknown in the United States prior to the great influx of immigrants during the expansion period of the country[3]—, any reports of cases in which there is no known contact with people either born in foreign countries or having near relatives born in other countries, are of interest. The case to be reported is, to our knowledge, the first published report of tinea favosa in a native-born North Carolinian. The main point of interest is the problem presented in the diagnosis of the disease. Although favus is rare, it probably often goes unrecognized, owing to the possibility of confusion with other diseases of the scalp, notably seborrheic dermatitis, psoriasis, and tinea amiantacea.

The following report is of a patient living in the eastern part of North Carolina, in whom no history of contacts with persons of foreign extraction was found.

Report of Case

M. J., a white female, 20 years of age, was born in Maysville, in Onslow County, North Carolina. Her father and mother are living and well. One brother, aged 26 years, has a "similar condition of the scalp". He was not available for study. Seven other brothers and sisters are all living and well, and all were reported free of any scalp diseases. The patient had never been married.

The patient was first seen at Duke Hospital with a surgical complaint on May 12, 1937. Because of a marked scaling of the scalp a dermatological consultation was requested and a tentative diagnosis of seborrheic dermatitis was made. An ointment of 6 per cent crude coal tar, 2 per cent salicylic acid, and 2 per cent sulphur in aquaphor was given, to be applied each night. After two weeks she was very much improved, and was not seen again until July 8, 1940, at which time she stated that the previous medication had only helped temporarily and that after a few weeks her scalp was "as bad as ever". One observer detected a "mousy" odor of the scalp at this time which suggested favus, and her history was reviewed. The patient stated that her scalp condition had started when she was about 8 years of age, and she remembered that her brother also was similarly affected. She usually managed to keep the scaling inconspicuous by the use of olive oil and salicylic acid, but it had never been completely eradicated. At no time had bleeding or pus formation been

From the Section of Dermatology and Syphilology of the Department of Medicine and the Department of Bacteriology, Duke University School of Medicine, Durham, North Carolina.
Aided by a grant from the John and Mary R. Markle Foundation.

1. Barrett, C. C., in Arch. Dermat. and Syph. 33:126 (January) 1936.
2. Wende, G., in Cut. Diseases, p. 383 (October) 1896.
3. Andrews, C.: Diseases of the Skin, Philadelphia, W. B. Saunders, p. 571.

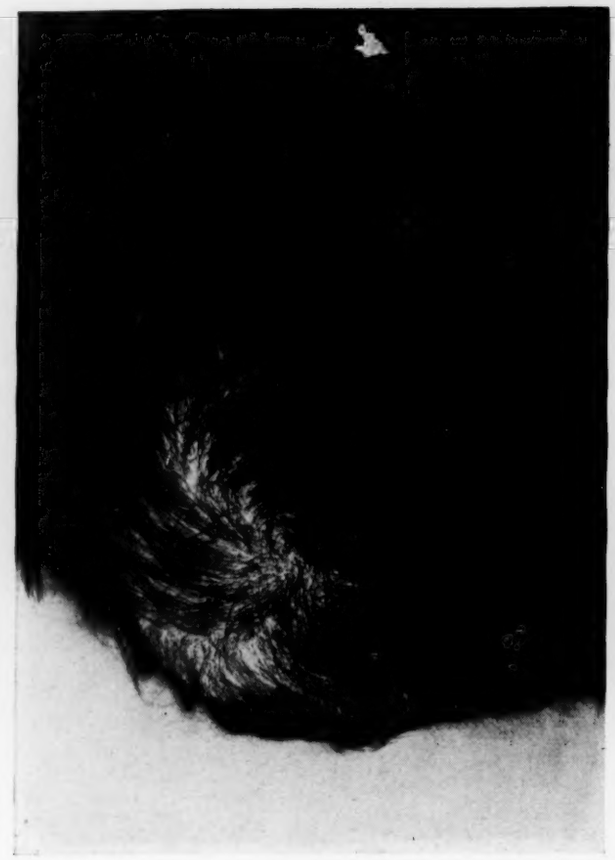

Fig. 1. Diffuse scaling of the scalp in tinea favosa.

observed, and the only symptom was moderate itching. The patient believed that her scalp had gradually become more involved each year.

The patient stated she had never lived or traveled outside the state of North Carolina, and that prior to her visit to this hospital she had never been more than a few miles from her present home. Her brother had never been out of this state as far as she knew, and during the past ten years he had been confined in the State penitentiary.

Except for a skeletal abnormality of the right femur due to an automobile accident, and the condition of the scalp, the physical examination was entirely negative. The temperature, pulse, and respirations were normal. There were no abnormalities of the finger or toe nails. The skin over the trunk, extremities, feet, hands, face, and neck was normal. The scalp was involved in a generalized scaly process. The scales were heavy and silvery-white in color (fig. 1). The individual scales were seen to be cup-shaped, and frequently were pierced by a long hair. No pus was evident, and when scales were removed by curettage, a dry granulating pit

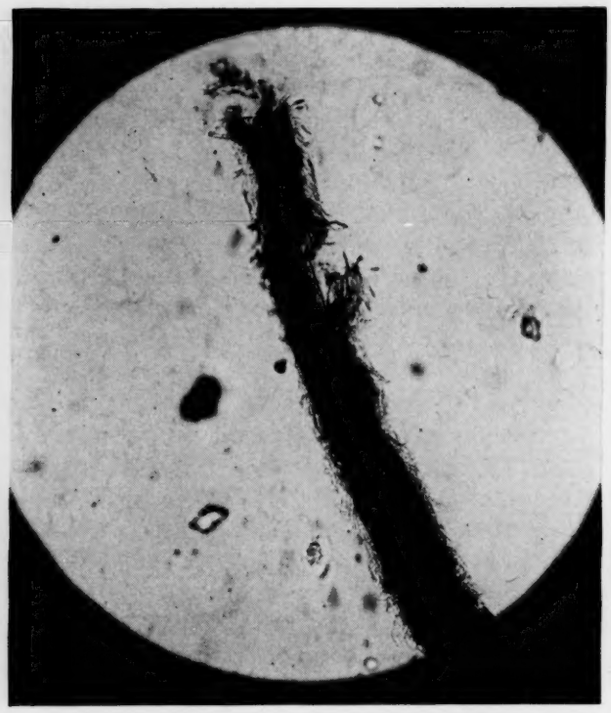

Fig. 2. Mycelial threads of Achorion schoenleinii invading the hair shaft.

was revealed in the scalp. A strong mousy odor was present. The hairs were generally long and not broken; they were dry, and the color was a dull grey.

The posterior occipital lymph nodes were moderately enlarged bilaterally.

The hemoglobin was 65 per cent, or 10 Gm. There were 3,300,000 red blood cells, and 7,800 white blood cells, with a normal differential count. The Wassermann and Kahn tests were negative. The urine examination was normal. Examination of hairs in 10 per cent potassium hydroxide solution revealed a fungus infection characteristic of Trichophyton (Achorion) schoenleinii. The hair shafts were invaded by mycelial elements, among which were seen numerous air bubbles (fig. 2). Examination of the scales in 10 per cent potassium hydroxide solution showed them to be infected with the same fungus. Hair and scales were cultured on July 9, 1940, and Trichophyton (Achorion) schoenleinii obtained.

The scalp was treated with 2½ per cent salicylic acid and 2½ per cent ammoniated mercury in soft soap. This was applied each night and the head was shampooed the next morning. At the end of two weeks the scalp was free of scales. The patient was then given epilating doses of x-ray to the scalp and was discharged. After epilation was

Fig. 3. The dark lines in the hair shaft are air spaces left by the invading organisms.

complete 5 per cent ammoniated mercury ointment was rubbed into the scalp each night and morning. Three months after epilation, when she was last heard from, her hair was returning and no new scaling was reported.

Laboratory Diagnosis of Tinea Favosa

The establishment of a diagnosis of any mycotic skin disease depends upon the demonstration of the fungus in the infected material from a skin lesion, and the culture of the fungus upon a suitable medium. Epilated hairs and scales from the scalp were placed in a drop of 10 per cent potassium hydroxide solution on one end of a glass slide, and a cover slip was placed over the material. This preparation was heated gently over a low flame of a bunsen burner, and the material was allowed to clear for a few minutes. Microscopically the scales revealed numerous branching mycelial threads, some of which were broken. Microscopically the hair shaft was seen to be invaded, and the fungus (endothrix) was found to be more numerous in the region of the follicle. It appeared as long parallel mycelial elements extending longitudinally in the cortex of the hair. Interspersed among the mycelial threads were numerous air bubbles and longitudinal air shafts which appeared as dark lines (fig. 3). This appearance of the infected hairs was characteristic of a Trichophyton (Achorion) schoenleinii infection.

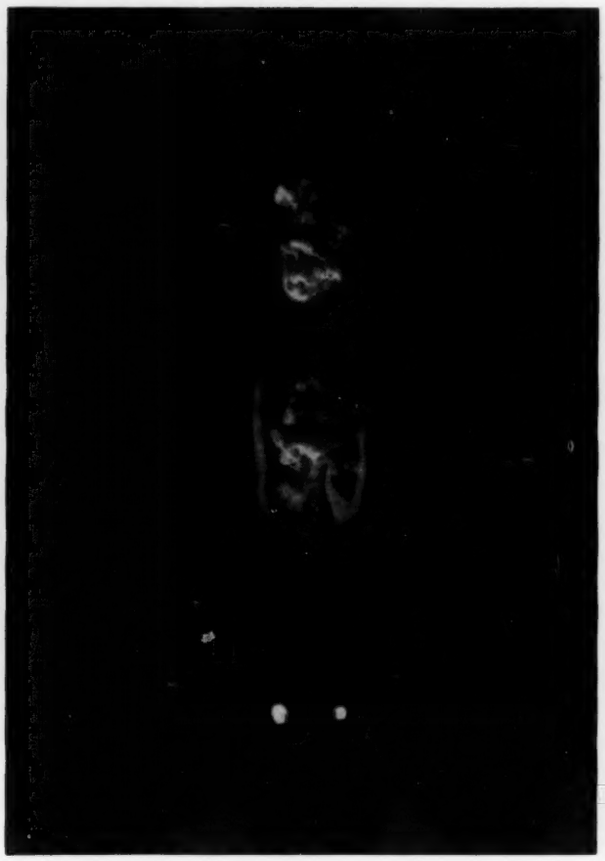

Fig. 4. Twenty-one day old culture of Achorion schoenleinii growth at room temperature on Sabouraud's media.

Infected hairs and scales were placed upon Sabouraud's glucose-agar slants, and the cultures maintained at room temperature. The colonies were slow growing, smooth (lacking aerial mycelium), and irregular in outline; later they became heaped up, folded, and brownish in color. Upon transfer, however, a short, nap-like, white aerial mycelium appeared over the surface of the colonies, and the brownish color of the original cultures was not noticeable (fig. 4). Microscopically the culture was composed of septate, branching mycelium, characterized by numerous swollen areas (chlamydospores) and the typical favic "chandelier". The gross cultural appearance of the fungus on Sabouraud's glucose-agar slants, and the microscopic morphology was typical of that for Trichophyton (Achorion) schoenleinii.

Treatment

The infection of favus penetrates down into the hair follicles to the papillae. This makes treatment difficult. Ordinary topical remedies, such as lotions and ointments, can-

not penetrate to this depth. The hairs in infected areas must be removed. Shaving the scalp will not remove the infected hair roots. Two methods are commonly used: mechanical forceps epilation, and epilation by roentgen-ray therapy. Mechanical epilation of the hairs, even under a Wood's filtered lamp, which causes the infected hairs to appear fluorescent, is not satisfactory. Infected hairs are constantly infecting adjacent hairs, and there is considerable danger of infection to the operator. Such a procedure in most instances would take months of painstaking work. For this reason roentgen-ray epilation is recommended. In the hands of an experienced roentgenologist this method of epilation of the scalp is rapid and safe, and the entire scalp is epilated at one time. It requires about fourteen to eighteen days after roentgen-ray therapy for the hair to fall out, and there will be a regrowth of downy hair about one month later. During this period of total alopecia 5 per cent ammoniated mercury in petrolatum, or 25 per cent iodine crystals in goose grease should be rubbed in daily. When the new hairs return careful examination for infected hairs should be made by means of a Wood's filtered lamp, and any suspected hairs pulled out. The topical treatments should be continued regularly for at least another month. Roentgen-rays do not in themselves destroy the organism, although the fungus may be inactivated to a degree[4].

Should this vigorous therapy fail to control the infection, a second epilation of the scalp may be done six to nine months later, and the same procedure followed. It is inadvisable to epilate by means of the roentgen-ray more than twice, as there is danger of total and permanent alopecia. Dermatologists in general do not advocate the use of thallium acetate by mouth to cause the hair to fall out, as the possible toxic effects of the drug have not been thoroughly studied.

Discussion

Ample proof of the infectiousness of favus exists in the reports of epidemics of the disease in Europe. It has been carefully studied in Italy, Poland, and neighboring countries[5]. It is recognized that the disease is most often associated with poverty and dirt. It is known to occur at the time of the wheat harvest in Australia, when large numbers of mice plague the area[6]. The association of these two facts lends some support to the view that favus may be spread by household rodents which are hosts to the fungus. At least 95 per cent of human cases of favus are reported to be caused by Trichophyton (Achorion) schoenleinii; the cases known to be due to mice were caused by Trichophyton (Achorion) quinckeanum[6].

There has been no satisfactory explanation for the cases reported from isolated areas in Kentucky, Arkansas, Tennessee[1], and in this state. Apparently in most of the reports the patients lived in poverty stricken districts. The patient herein described was supported by local welfare agencies.

In its early stages favus may be confused with the common "ringworm" of the scalp, tinea capitis, most often due to infections with Microsporum audouini or Microsporum canis[7]. As a rule favus begins as a slightly raised erythematous patch which soon forms an overlying crust of whitish-yellow color. As the crust ages the center becomes depressed, forming the cup-shaped scale, or scutulum, so typical of tinea favosa. The spread is commonly by direct extension, the encrusted area slowly enlarging to form larger patches. As in common "ringworm" of the scalp, the area tends to be free of hair, but in favus those hairs remaining are long and dry, showing loss of color. They are not the characteristic broken-off stubby hairs of common "ringworm". Both diseases show a loss of hair at the onset, but persistent alopecia with scarring is the rule in favus. The onset of tinea favosa and other tineas of the scalp is usually in young children, rarely infants or adults, but favus may and usually does persist long after puberty. It has been known to last for forty years or more[5], whereas in the common tinea capitis it is the rule for the disease to disappear spontaneously at puberty. Tinea favosa that has existed for long periods is generally considered quiescent, although it is definitely known to be quite contagious. Cases have been reported in which grandparents, after having had the disease thirty years or more, have infected their grandchildren. The chronicity of the disease is its real danger, as it causes dispersion of the disease, as well

4. McCarthy, L.: Diseases of the Hair, St. Louis, C. V. Mosby Co., 1940.
5. Bushe, Langer, and Peiser, in Urol. and Cutan. Rev. 30: 449, 1926.
6. Paul, Norman, in Brit. J. Dermat. 48:247 (May) 1936.
7. Lewis, G. and Hopper, M.: Introduction to Medical Mycology, Chicago, Year Book Publishers, Inc.

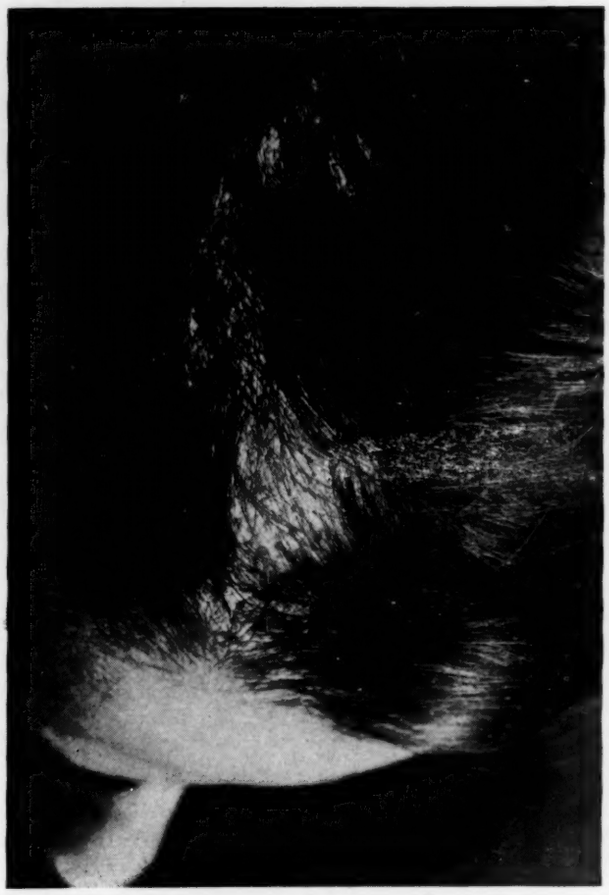

Fig. 5. Tinea favosa of the scalp. This may be easily confused with psoriasis and other scalp conditions.

as the disfiguring scarring seen in cases of long standing. It is in such cases that both the patient and the physician are led to believe that the disease is probably an incurable "eczema" or psoriasis (fig. 5).

In addition to the foregoing symptoms, an odor described as the odor of the urine of mice is so characteristic that it may often lead to the diagnosis of favus, but confirmation by laboratory study must be had before intensive therapy is started. Besides affecting the scalp, favus lesions may appear on other areas of the skin. These appear as discrete encrusted lesions similar to discrete lesions seen in the scalp. The scales are yellowish in color and are adherent to the underlying skin. As the lesion enlarges, the center shows a tendency toward healing, leaving a scar. When sensitivity to the infection is increased a widespread papular eruption may occur, termed a favid. This is similar to other bacterial and mycotic "ids" and does not respond to therapy until the primary focus of the infection is healed—at which time the favid heals spontaneously.

Summary

The possible difficulties encountered in the diagnosis of tinea favosa, or favus of the scalp, are considered, and a case of the disease in a native-born North Carolinian is reported. There was no known contact with foreign-born persons, but a brother of the patient has a similar condition of the scalp. The duration of the disease is twelve years. Methods of diagnosis and treatment are discussed.

OVARIAN DERMOID CYST AS A CAUSE OF RENAL DISPLACEMENT AND HYDRONEPHROSIS

Case Report

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and
L. W. OEHLBECK, M. D.
Grace Hospital
MORGANTON

A white female, 16 years of age, was admitted to Grace Hospital on December 16, 1940, complaining of distention of the abdomen.

For the past three years the patient had noted gradual enlargement of the abdomen, which had become worse in the last four months. Her classmates at school thought she was pregnant. Lately she had noted some shortness of breath on exertion, and, during the past two months, some edema of the legs which disappeared during the night.

Previous to this admission, the following x-ray studies had been done by one of us (L. W. O.):

On December 10, 1940, an anteroposterior study in the supine position was made, and the following report was given:

"The rather general marked increase in radio-opacity of the abdomen appears characteristic of ascites. This direct abdominal study shows very significant findings on the right side, where there is complete obliteration of the psoas muscle border. It is difficult to outline the kidneys, but the right kidney appears elevated. In addition there is a small calcified area just lateral to the intervertebral disc in the lumbar area; this has sufficient density to be considered as a possible renal calculus."

On December 11 excretory pyelographic

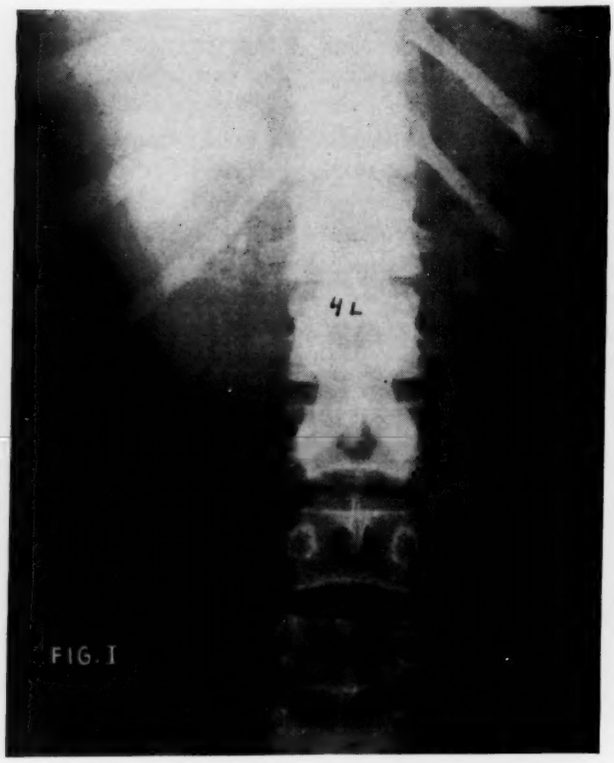

Fig. I. Pre-operative excretory pyelogram, showing marked elevation of the right kidney, with the pelvis about opposite the level of the twelfth dorsal body. A rather pronounced hydronephrosis is apparent.

studies were made, with the following findings:

"This study shows conclusively that the right kidney is considerably elevated and that there is a rather marked degree of hydronephrosis. The opacity seen in the initial examination of the abdomen is definitely not in the renal area. The right kidney concentrates the dye slowly and the dye may be seen for a forty-five minute period. From this study it is also evident that there is probably a large retroperitoneal mass causing compression of the psoas muscle on this side, elevation of the right kidney, and compression of the right ureter. The left kidney appears to show normal function."

On December 12 a serial gastro-intestinal study was done, and the report was as follows:

"This serial examination of the intestinal tract reveals marked upward displacement of the stomach and the duodenum, and lateral displacement to the left of the jejunum and ileum. The cecum is markedly elevated, but is not displaced anteriorly.

"Conclusions: This examination of the abdomen would appear to be indicative of a retroperitoneal type of tumor, causing marked upward displacement of the right kidney and of much of the intestinal tract. The pronounced hydronephrosis on the right would appear to be due to extrinsic pressure on the ureter from the tumor mass."

The family history was non-contributory, and the individual history was negative. Menses started at the age of 14, and had been regular, every twenty-eight days, lasting four days. Physical examination revealed a 16 year old, white female, lying flat in bed. There was a slight shortness of breath. The pulse was 94 on admission; respirations, 28; blood pressure, 115 systolic, 78 diastolic. Examination of the eyes, mouth, and neck was negative. There was no sign of thyroid enlargement. The heart was regular in rate and rhythm, with no murmur or thrill. The apical impulse was in the fifth intercostal space inside the midclavicular line. The lungs were clear and resonant throughout, except for slight dullness to percussion at both bases.

The abdomen was enlarged to the size of a full-term pregnancy. There was some shifting dullness on percussion, and a soft, symmetrical tumor, which was movable. No fetal heart tones were present. The uterus was small, and, as far as could be ascertained by pelvic examination, the mass in the abdomen was not attached to the uterus. The left ovary was normal on palpation. A satisfactory examination could not be done because of a natural intact hymen.

Extremities: The reflexes were present and equal. Edema of the legs beneath the knees was noted.

The following laboratory findings were noted: The red cell count was 4,040,000, the hemoglobin, 100 per cent; the leukocyte count was 9600, with 64 per cent polymorphonuclears, 24 per cent small lymphocytes, 4 per cent large lymphocytes, 2 per cent eosinophils, and 2 per cent basophils. The blood Wassermann test was negative. The specific gravity of the urine was 1.015; there was an occasional red blood cell, no sugar, and no albumin.

On December 17 a paramedian incision was made which disclosed a large mass filling the entire abdomen. The ascending colon and cecum were pushed up high, and practically all the small intestines were lying in the left wall of the abdomen. The pedicle was easily found attached to where the right ovary should have been. A purse string suture was placed and a large ovarian cyst

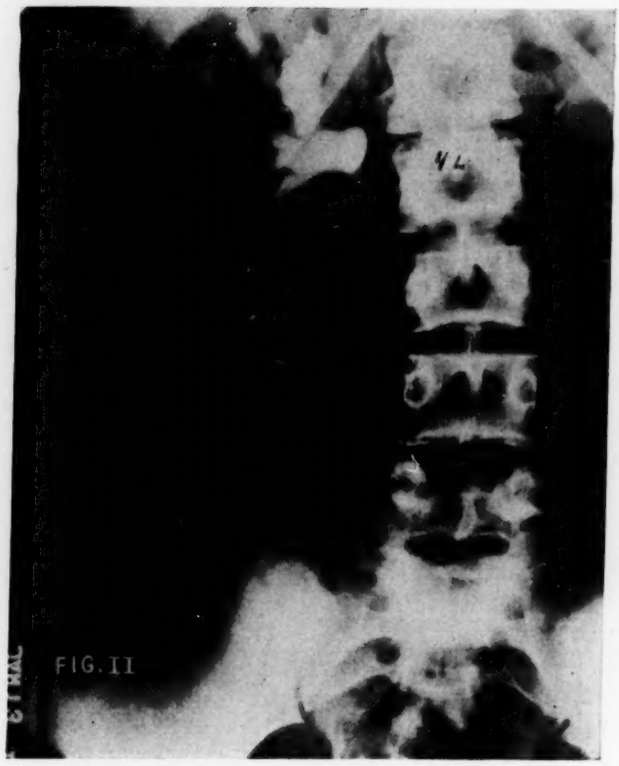

Fig. II. Excretory pyelogram one month after removal of a large ovarian dermoid cyst. The right kidney has returned to its normal bed, with the pelvis about opposite the level of the fourth lumbar body. A considerable reduction in the degree of hydronephrosis is evident at this time.

was tapped with the trocar and fluid was removed gradually. Fat and hair were present in the cyst. The growth was later reported as a dermoid cyst. The pedicle was clamped and cut. The incision was enlarged to remove the tumor mass. An incidental appendectomy was done. The right kidney was palpated and found to be enlarged.

The patient's recovery was uneventful.

Diagnosis: Ovarian dermoid cyst.

Comment

Renal displacement from an intraperitoneal tumor has always been regarded as extremely rare, some authors stating that it never occurs. It was present here to such a marked degree that before the examination of the large bowel was made it appeared that there was no other serious possibility than a retroperitoneal neoplasm.

A re-examination of the right kidney one month following operative removal of the large ovarian dermoid cyst showed it to be in normal position. Excretory pyelography revealed marked reduction in the degree of hydronephrosis. The opacity seen over the right renal area in the original study represented calcareous material in the dermoid, and was removed with it. It is noteworthy that there was never any interference with the normal menstrual cycle.

THE MEDICAL AND HOSPITAL FACILITIES AVAILABLE TO CHILDREN IN NORTH CAROLINA

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DURHAM

The reduction of deaths in children, the object of this Conference, can be, and is being accomplished in three ways: (1) By the provision of adequate medical and hospital facilities for the treatment of children; (2) by the increased utilization of these facilities through public education and charity; and (3) by the elimination of many diseases through preventive pediatrics.

Facilities

In North Carolina, in 1936, the ratio of physicians to the population was 1:1,284 in contrast to the national figure of 1:719[1]. However, through the three medical schools, the number of physicians locating in North Carolina is increasing. Of the 2,740 physicians in North Carolina, 1,200 are general practitioners and only 40 are pediatricians. Of the 3,571,623 population of the state, approximately 900,000 are children (a ratio of 1:4). As there are 22,500 children per pediatrician, and 750 per general practitioner, obviously the majority of children in North Carolina, as in other parts of the country[2], are cared for by general practitioners and not by pediatricians.

In 1936, the North Carolina population per approved hospital bed was 1,837, compared to 419 for the country as a whole. If unapproved hospitals are included, the respective figures are 212 and 107[1]. As a result of the assistance by the Duke Endowment, the number of hospital beds is growing. Last year, the ninety North Carolina

Presented at the North Carolina Conference on Children in a Democracy, Raleigh, February 6, 1941. From the Department of Pediatrics, Duke University School of Medicine and Duke Hospital, Durham.

1. Davison, W. C.: A Survey of Medical Education in the South. Address at the Inauguration of Oliver C. Carmichael as Chancellor of Vanderbilt University and a Symposium on Higher Education in the South. Nashville, Tenn., Vanderbilt University (February 4) 1938.

2. Council on Medical Education and Hospitals of the American Medical Association: Medical Education in the United States, 1934-1939, A.M.A., Chicago, 1940.

hospitals provided over a million and a half patient-days of hospital care, approximately 14 per cent of which were for children, and 8 per cent for maternity cases. Assisted by the North Carolina State Board of Health and the Children's Bureau, 190 prenatal and well-baby clinics are being conducted one or more times each month in sixty-two of the one hundred counties.

Utilization

The question of whether these facilities are adequate cannot be answered until they are used by a larger proportion of the population. The utilization of hospital beds has risen rapidly since the establishment of the Duke Endowment in 1925 and the Hospital Care and Hospital Saving Associations in 1933; last year, however, 34 per cent of the hospital beds were unoccupied. Inadequate facilities and poverty are not the only reasons for failure to obtain medical service. That the lowest economic third of the public receives the least medical care and has the most illness[3] often may be due to the fact that this group does not realize that adequate medical care is necessary, and does not know that medical facilities are available. The fact that 19 per cent of the pediatric deaths in 1937 in North Carolina occurred in children who were not under the care of physicians is as likely to be due to the ignorance of their parents as to poverty or lack of medical resources. Among 10 diphtheritic patients treated at Duke Hospital during one month, 8 were not seen by physicians for an average of five days after the onset, and, of 9 other children suffering from diphtheritic paralysis, 7 were not taken to physicians until the onset of paralysis[4]. The parents had not realized the possibility that a "sore throat" might be diphtheria. Yet diphtheria antitoxin is supplied at cost by the State Laboratory, and is given free in many counties.

In Durham County, which is typical of most American counties, the medical profession, the infant feeding clinics, the health department, the county physician, and the Watts, Lincoln and Duke Hospital Clinics can provide the necessary preventive and therapeutic measures, regardless of the poverty of the patient, if the public is made aware of their necessity. In spite of these facilities, fifty-six of the one hundred counties in North Carolina have a lower infant mortality than Durham, and forty of the forty-eight states have a lower death rate in infants than North Carolina. To teach the public to use these present medical resources, the Durham-Orange County Medical Society recently has authorized a series of unsigned newspaper articles on preventive pediatrics, calling attention to the unnecessary deaths, and to the means of preventing them. Syndicated medical articles have made remarkable progress in educating the public, but obviously they cannot reach those who do not read the newspapers[5].

Education of the Public

National, state, county and city advertising campaigns in newspapers, busses, billboards, and radio, and through churches, schools, the Parent-Teachers' Association, the American Legion, etc., on the necessity for prenatal, natal and postnatal care, and on the medical facilities available, conducted by publicity experts employed by county and state health departments, are necessary to reach more of the population. If, through advertising, a public demand can be created for automobiles, electric refrigerators, cigarettes, and patent and home medicines (which represent 14 per cent of the present medical costs[6]), cannot the people be taught to seek adequate medical service? Better pediatric and obstetric care and a lower infant and maternal mortality can be obtained with a smaller amount of money by teaching the public to utilize the present medical facilities than by providing additional medical resources, which the public still must be taught to use. After an educational program has produced a demand for more medical care, the medical services can be extended as they are needed. The public gets the product it demands, whether it is medical care or a nationally advertised variety of tooth paste[5].

Charity

Charity, the greatest of the biblical virtues, of course is necessary, but only after investigation by social service or welfare departments. Charity is the most abused virtue in medicine. The average physician and hos-

3. National Health Conference, J.A.M.A. 111:432-454 (July 30) 1938.
4. Arena, J. M., and Rasmussen, L. P.: Diphtheritic Polyneuritis, J. Pediat. 13:352-356 (September) 1938.
5. Davison, W. C.: The Future of American Pediatrics, J. Pediat. 14:810-814 (June) 1938.
6. Rorem, C. R., and Fischelis, R. P.: The Costs of Medicines. Publications of the Committee on the Cost of Medical Care, No. 14, Chicago, 1932, University of Chicago Press, p. 18.

pital do at least one-third of their work for nothing. Unfortunately some of this charity goes to those who do not need it. The public, or at least a large share of it, regards the medical profession and hospitals as it does the customs officials and income tax collectors. It withholds as much financial information as possible and considers cheating as legitimate gain, if undetected. It seems to glory in getting something for nothing. A few years ago a well dressed man entered Duke Hospital with the statement that he had heard that Mr. Duke had left four millions for charity and that he had come to collect his share. Soon after it opened, the hospital found that over 90 per cent of the patients were not paying anything, and F. Vernon Altvater, the superintendent, clearly demonstrated that most of them could pay something, though usually not the full cost. He therefore notified the public that thenceforth no free patients would be admitted, but that, if the patients' friends, church, lodge, or county welfare department would pay half the cost, Duke Hospital would furnish the balance, in accordance with Mr. Duke's plan that the Duke Endowment and the counties should share the charity load. Nearly all of the counties are now cooperating with this plan. Seventy-two per cent of the patients pay less than cost, but by having them contribute in accordance with their means, Duke Hospital, with the same amount of money, now is helping 13,000 patients annually to be treated instead of giving complete charity care to 4,000. The patients who need charity care are getting it; for their cases have been investigated by their home folks who are putting up half the cost. The extension of social service and welfare facilities will help greatly in solving this charity problem by distinguishing between the needy and the deadbeats, and also by arousing local interest in the care of the indigent sick. The counties should know their poor and should help in providing medical and hospital care for them. As long as the physicians and hospitals carry the load without murmuring, the public will let them, and will abuse the privilege.

Preventive Pediatrics

Whether the cost is borne by taxation, private fees or local charity, prevention is the most important phase of pediatrics and should be extended both by general practitioners and by pediatricians. "He who cures a disease may be the most skilful, but he who prevents it is the safest physician." Three-fourths of the quarter of a million annual deaths of American children[7] can and should be prevented! Twenty-one per cent of these deaths are due to curable diseases, while 56 per cent are caused by preventable conditions[8].

During the past twenty years, the mortality among children has decreased 66 per cent[9]. In 1920, one-fourth of all deaths were among children, but today the ratio has fallen to one-eighth. That this decrease is not entirely due to the falling birth rate[10] is indicated by the fact that during this same period, the ratio of children to the total population fell only from 1:3 to 1:4. The need for the hospitalization of sick children should eventually decrease, as diphtheria, whooping cough, dysentery and typhoid fever become rarities; as pneumonia and meningitis are treated at home with sulfapyridine or other drugs; as congenital syphilis decreases through the expansion of the program for treating adults; and as nutritional problems are eradicated by the simplification of infant feeding and the dissemination of information on nutritional requirements.

The necessity for greater emphasis on preventive pediatrics in this state is illustrated by the fact that although free toxoid is supplied and its usage is required by the North Carolina State Board of Health, diphtheria is responsible for 7 per cent of the illnesses of children in Duke Hospital, and that deaths from this disease per 100,000 population are fourteen times higher in North Carolina than in New York. Contrast that picture with the record of Toronto, Canada, without a single case of diphtheria in 1940. Toronto's success is due not to any compulsory laws, but to high-powered public health propaganda. For the last ten years, the health workers have persuaded the parents of every newborn baby to have the child immunized at the age of six months. Toxoid injections also are given to all school children. To date

7. Mortality Statistics, 1927-1933, Part I, Tables and General Tables. U. S. Dept. of Commerce, Bureau of the Census.
8. Davison, W. C.: Preventive Pediatrics, J.A.M.A. 114:742-746 (March 2) 1940.
9. Cooper, G. M.: "In 1919, North Carolina with a population of two and a half million had 10,864 deaths in children under 15 years of age, while in 1939, although the population had increased to three and a half million, the deaths in children had diminished to 6,725." (Personal communication)
10. Cooper, G. M.: "The birth-rate in North Carolina, which was 29.3 per 1,000 population in 1919, fell to 22.6 in 1939." (Personal communication)

80 per cent of the city's school children have received this protection.

The importance of preventive pediatrics cannot be overemphasized, and it is in this field, as well as in practice, that pediatricians will always be needed.

RELATIONSHIP OF RACE TO THE INCIDENCE OF DIPHTHERIA AND OF POSITIVE SCHICK, TUBERCULIN AND WASSERMANN TESTS IN HOSPITALIZED CHILDREN

DAVID W. MARTIN, M. D. *and*
JAY M. ARENA, M. D.
DURHAM

The statement often has been made that diphtheria is less frequently seen in colored than in white children, and that the reverse is true of tuberculosis and syphilis. Is this race variation due to a difference in susceptibility, or to greater exposure from the overcrowding and poor living conditions of the colored children; or are the milder cases of diphtheria overlooked? In an attempt to answer this question, the incidence of diphtheria and the percentages of positive Schick, tuberculin and Wassermann tests of the white and colored children admitted to Duke Hospital from 1932 to 1939 were tabulated (table 1). As these children, who came from practically every county in North Carolina, were hospital patients, the figures may not be an accurate index of the incidence of diphtheria, tuberculosis and syphilis; yet they are similar to the death rates from these diseases in children throughout the state (table 2).

The incidence of clinical diphtheria in the colored children in this series is 69 per cent of that in the white children (table 1), and the susceptibility to diphtheria in the colored children is 75 per cent of that in the white children (table 1). These percentages are so similar that it would seem that the lower incidence of diphtheria in colored children is due to their lower susceptibility rather than to the overlooking of mild cases. That the death rate from diphtheria in colored children is only 48 per cent of that in white children (table 2) also may be due to this apparently lower susceptibility, although undiagnosed cases cannot be excluded as an explanation.

From the Department of Pediatrics, Duke University School of Medicine, and Duke Hospital.

TABLE 1

Relationship of Race to the Incidence of Diphtheria and of Positive Schick, Tuberculin and Wassermann Tests (1932-1939)

	White Children	*Colored Children*
Cases of Diphtheria	(1261 Patients) 63, or 5.2%	(518 Patients) 18, or 3.6%
Positive Schick Tests	(1644 Patients) 253, or 15.4%	(642 Patients) 85, or 11.6%
Positive Tuberculin Tests	(1751 Patients) 90, or 5.1%	(684 Patients) 95, or 13.8%
Positive Wassermann Tests	(1196 Patients) 12, or 1%	(496 Patients) 39, or 7.8%

TABLE 2

Mortality Statistics in North Carolina for 1938 (From Birth to 14 Years)

	White		*Colored*	
	Total	*Per 100,000 Population*	*Total*	*Per 100,000 Population*
Diphtheria	143	5.8	28	2.8
Tuberculosis (All Types)	33	1.3	75	7.5
Syphilis	27	1.	92	9.2

The incidence of tuberculous infections, as evidenced by positive tuberculin tests, in the white children in this series is 37 per cent of that in the colored children (table 1), and the death rate from tuberculosis in white children in the state is 17 per cent of that in colored children (table 2). These lower tuberculosis figures in the white children probably indicate a lower susceptibility to tuberculosis, although they also may be explained by a lower rate of exposure.

The incidence of syphilis in the white children in this series is 13 per cent of that in the colored children (table 1), and the mortality from syphilis in white children in the state is 11 per cent of that in colored children (table 2). These lower syphilis figures in the white children probably are due to a lower rate of exposure to syphilis, although a lower susceptibility also may be the cause.

The rapid decline in tuberculosis mortality rates has been due mainly to lessening in the incidence of infection. Among those infected, the toll, though diminished, is still appalling. Mortality statistics, morbidity reports, autopsy examinations, tuberculin tests and x-ray surveys indicate that about half of all infected individuals develop clinical tuberculosis, and that from 10 to 20 per cent of them eventually die of the disease. The high risk of disease and death due to infection by the tubercle bacillus justifies increased efforts for its prevention. Emil Bogen, M.D., Amer. Rev. of Tuber., August, 1940.

THE PINWORM AND THE APPENDIX

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and

ROBERT P. MOREHEAD, M. D.

WAKE FOREST

The pinworm, Oxyuris vermicularis, is one of the most common of the parasites encountered in daily practice. As its name indicates, it is pin-sized, measuring about .5 to 1 cm. in length, and is grayish-white in color. If a warm stool is examined, these actively moving worms may be discovered without difficulty. Infection results from ingestion of the eggs found on fecal contaminated objects which are brought into the mouth. The egg matures in the small intestine, but the adult stage is passed in the colon. The female worm crawls out of the anus to deposit its eggs on the perianal skin. In so doing, it gives rise to the clinical manifestation, pruritus ani, which usually leads one to suspect the presence of these parasites.

The literature, particularly that of foreign origin, contains numerous reports in regard to the occurrence of worms in the appendix. There is, however, marked difference of opinion as to the frequency of occurrence and as to the relation to the etiology of appendicitis. Since we were of the opinion that the frequency varied in different sections of the country and that in many cases the pinworms were overlooked, we began a study to determine the frequency in this state. The statistics presented were obtained in studying one thousand appendixes in our surgical pathology laboratory since January 1, 1941. All of the appendixes came from hospitals in various sections of North Carolina.

Method of Study

Because of the obvious possibility of error by examination of microscopic sections alone, three methods of study were employed. The appendix was first examined grossly. Sections were next taken from various portions of the appendix for microscopic study. Finally, the remaining portions and the contents of the lumen were examined for evidence of parasites in the sediment.

Incidence

Fifty-two appendixes (5.2 per cent) contained the Oxyuris vermicularis. The number of parasites in each appendix varied from one to twenty-five.

Age

The youngest patient was 3 years of age, the oldest, 47; the average age was 16 years. It is of interest to note that the majority of patients above 30 years of age had their appendixes removed secondarily to other intra-abdominal operations.

Race

Thirty-two of the patients were white and twenty were colored.

Sex

It is striking to note that forty-two of the patients were females, while only ten were males.

Clinical Symptomatology

Thirty-five of the patients complained of abdominal pain, nausea and vomiting of an acute type. In seven of the cases there was only chronic abdominal discomfort. In eight instances the appendix was removed in the course of an operation primarily done for the correction of other abdominal pathology, usually fibromyomata or pelvic inflammatory disease.

Pathological Findings

Gross: The typically involved appendix was without evident change except for distention of the lumen. The worms occupied a position adjacent to the mucosa and on the outer surface of the feces. The male worm is small and transparent and may easily be overlooked even on close inspection. The intraluminal contents become dislodged without difficulty. This explains why the worms are often not seen in microscopic sections when they are present in the gross.

Microscopic: Thirty-six appendixes showed lumen distention without evident inflammatory change in the wall. Six appendixes showed diffuse acute inflammatory involvement. Fibrosis was found in ten of the cases.

Conclusions

1. Five and two-tenths per cent of appendixes examined in routine surgical pathology were found to contain Oxyuris vermicularis.

From the Department of Pathology, Bowman Gray School of Medicine, Wake Forest College, Winston-Salem. Submitted for publication April 29, 1941.

2. Females were affected four times as frequently as males in this series.

3. Clinically the presence of pinworms in stools in cases of acute abdominal pain does not mean that the patients may be treated merely for oxyuriasis. The appendiceal symptoms must be accorded a full share of attention. Eighteen per cent of the worm infested appendixes showed an acute diffuse reaction.

4. The clinical symptomatology and the pathologic picture in oxyuriasis of the appendix are not compatible in the great majority of cases. Further physiopathologic studies of the problem are indicated.

INJURIES SEEN IN WAR AND PEACE

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With the thousands that are being maimed, crippled and killed as a result of war in European countries, and with the increasingly large numbers of citizens injured in our industries and on our highways, a consideration of injuries seen in war zones and in civil practice, and of their relationships and differences, seems timely.

In the earlier days, many surgeons received most of their training in wars. This training and experience enabled them to minister more efficiently to those injured in civil life. This condition still prevails today. Lessons learned have varied with the periods, because weapons and tools of destruction have been constantly changing. In the early days of fighting in this country, the soldier's wounds consisted of those inflicted by the bow and arrow, the sword, and the single ball shot, whether from rifle or cannon. Each of these produced what might be termed much more streamlined injuries than those received in combat in the twentieth century. In bygone days, it was fashionable for the veteran to display his wounds only on the front of his body, but it is not so any more. With the present multiple and varied weapons of warfare, the soldier of today can without apology display wounds on any and all parts of his body.

Presented to the Seventh District Medical Society, Kannapolis, November 20, 1940.

Injuries seen in civil practice have also become more extensive—mainly as a result of the machine production in our industries, the good roads of our country, and the high-powered automobile.

In addition to injuries received on the battlefields, there has been introduced another angle of wounds in war. The civilian injuries in battle zones mount with each new war, as a result of the use of airplanes and highly mechanized machinery. From the same cause the actual percentage of soldiers killed and wounded is decreasing in these spectacular theatres of war.

Defenses Against Injury

With the increasing severity of injuries in war zones and in civil life, there must be some counteracting force, some means of protection, in part at least. What are our defenses, and of what does our body armor consist?

The first and most important defense is the physical stamina of the population. Cooper[1] very ably called attention to this fact when he reviewed the enormous accomplishments of Japan and Germany in their program of physical training from infancy, which is far ahead of anything in this country. It is of interest to recall that 51 per cent of our draft army in the first World War had some physical defect, and that 29.1 per cent were unfit for military service. Captain Leone[2] of the Army Medical Corps reports the rejection of 32.5 per cent of volunteers, owing to physical defects. Kessler[3], in discussing physical fitness, reports that in an examination of over 6000 industrial workers only seven per cent were found to be free from any gross defect. Have our standards for physical judgment been raised, or have we, in our haste for financial and industrial supremacy, lost sight of our physical stamina goal, and become weaker instead of stronger physically? The statistics from the coming selective service should be of considerable interest to us. The healthier any individual is at the time of receiving any type of injury, the greater damage he can withstand, and the more reserve he will have to overcome any complications which may develop.

1. Cooper, G. M.: Editorial, North Carolina Health Bull. 55: 3-4 (August) 1940.
2. Leone, George E.: Causes for Rejection for Entrance Into the Regular Army Due to Physical Defects, J. A. M. A. 115:1283-1284 (October 12) 1940.
3. Kessler, Henry H.: The Determination of Physical Fitness, J. A. M. A. 115:1591-1594 (November 9) 1940.

In addition to this natural resistance, we have other weapons of defense represented by the vaccines. It has been shown that gangrene is much more likely to develop in an individual with tuberculosis, typhoid fever, or malaria. The majority of our population is vaccinated against typhoid and smallpox, and there is being developed now a method of preventing malaria among soldiers in the malaria-infested areas.

Tetanus toxoid has also come forward in the last few years as a prophylactic. Some of the army units in Europe today have had immunizing doses of toxoid. It is being tried out here and its use in hazardous employments is being urged. With the advent of the sulfonamide group of drugs we have still another defense[4].

Infection

In spite of these potent defense forces, our results in treating wounds are sometimes disappointing, owing to some complication. The most frequent complicating factor is infection. The time elapsing between the receiving of an injury and the institution of proper treatment has a direct relation to the seriousness of infection. For an infection to develop in any portion of the body, sufficient pathogenic organisms of sufficient virulence have to be introduced over a sufficient length of time to produce tissue changes. That word sufficient is the variable factor.

In a so-called clean wound, where there is no injury except in the tract of penetration, organisms do not enter and produce tissue change in less than six hours. We feel that, under that time, the wound can be cleansed by mechanical means, for there has not been sufficient growth and entry of organisms that cannot be easily reached. If, however, there is additional cell trauma and reduced blood supply to the surrounding tissue, with a weakening of the home guard forces, bacterial penetration and reproduction will be more rapid.

In areas where infection is suspected, treatment must be instituted promptly. Many writers have shown that infection sets in earlier in abdominal and thoracic wounds than in any other portion of the body. In a series of abdominal wounds which were operated on and closed without drains, the results were as follows:

Of those operated on within four hours, 60 per cent recovered.
Of those operated on within six hours, 50 per cent recovered.
Of those operated on within eight to twelve hours, only 10 per cent recovered.

Most injuries that are seen after six hours can be classed as infected, since there is already an established bacterial invasion; therefore, no complete closure should be attempted.

Of the many bacteria which may cause infection, I shall mention only the two most important. The first is the hemolytic streptococcus. It was estimated that this organism caused 79 per cent of all deaths from infected wounds in the World War, by producing erysipelas, cellulitis and septicemia. I am sure that this organism likewise predominates in peace time infections. The other great offender is the anaerobic organism, B. Welchii, and other associated anaerobes.

Treatment

The detailed treatment of injuries is far too extensive to be covered in this discussion. I would like to call your attention to a few of the most important general principles relating to first aid, hemorrhage, shock, and infection.

Victims of automobile accidents who are brought into the hospitals have often been rushed over bumpy roads by any makeshift means of transportation, with anxious friends constantly shaking or disturbing persons who are unconscious or semi-conscious from head injuries. We frequently see badly fractured extremities which have been moved or allowed to dangle, with continued damage to soft tissue and vital structures, or serious loss of blood from some area where bleeding could be easily controlled. This condition, to a certain extent, is being corrected by the Red Cross, in its establishment of trained first aid crews at selected filling stations on the highways of our country.

I think the physician is at fault sometimes in not giving the proper preliminary preparation to these injuries before beginning repair processes. An important factor in the healing of a dirty wound is the removal of potential infective sources. Scalp wounds are very hard to cleanse properly, and the first important item is to shave the scalp extensively. This is never done too thoroughly, and is quite often done too sparingly.

4. Johnson, Robert W.: Chemotherapy in the Prevention of Infection in Compound Fractures, Am. J. Surg. 49:195-200 (July) 1940.

With a very extensive wound a general anesthetic is indicated. Sterile gauze, soaked in olive oil and immediately thrust into the laceration is soothing, and is also a protection against further contamination in the cleansing process. Nothing is better for cleansing these areas than the use of prolonged irrigations with normal saline solution, after which the surrounding skin areas can be sterilized with some antiseptic solution and the actual repair work begun.

Quite often the most important immediate consideration in an injury is the control of hemorrhage. This is sometimes carried out in extreme cases with little immediate regard for sepsis. There are certain areas, such as the abdomen, chest, and particularly the neck, in which it is necessary to do an exploratory operation immediately in order to prevent a fatal internal hemorrhage.

The underlying principles in shock production are still somewhat confused in the minds of many. At any rate, there is a vital depression of the circulatory system, and it is fairly easy to determine whether it is due to actual loss of blood volume or to massive tissue trauma. In any instance, large doses of morphine should be given, heat should be applied, and the blood volume should be restored by transfusion, or by the giving of plasma or saline solutions. In some cases major surgical procedures will have to be delayed.

The controlling of infection is the larger problem. The greatest factor in this condition is time, as has been stated. The tactics employed depend upon the time which has elapsed between the injury and the institution of treatment. All wounds which are not sutured within the first four hours are probably infected. Those in which repair methods have not been instituted before six hours can be definitely classed as infected. By "infected" we mean that organisms have penetrated beneath the surface of injured tissue. Of course, all these cases are contaminated immediately, but during the contamination stage, superficial organisms can readily be removed by mechanical means. Their entry is facilitated by the presence of crushed devitalized tissue and by a deficient blood supply. An attempt should be made to remove all possible sources of infection by excising damaged tissue and foreign material. In cases known to be infected the wound should not be completely sutured. Some operators[5] place non-absorbable sutures in these wounds and leave them free, to be tied when the infection subsides. The possibility of introducing bacteria and infection following the original repair work should not be overlooked. Clean wounds and surgical incisions of civil practice are sometimes contaminated by a too hasty dressing, which traumatizes a freshly healing area and exposes it to the atmosphere.

Summary

There is a distinct similarity in the types of injuries seen in war zones and in civil practice.

The ultimate results in revovery will depend to a large extent upon the physical make-up of the injured person and upon the additional defense forces which the surgeon has at his command.

The greatest complicating factor is that of infection by the streptococcus and anaerobic organisms.

By early and proper treatment—which should be governed by the time elapsing between the injury and the beginning of the repair process—, many of those injured can be restored to their former independent status.

5. Coller, F. A. and Valk, W. L.: The Delayed Closure of Contaminated Wounds, Am. J. Surg. 112:256-270 (August) 1940.

Sulfaguanidine, New Sulfonamide Derivative, Is Released by Squibb

Sulfaguanidine, the new sulfonamide compound which clinical trial indicates may be of great usefulness in certain diseases of the gastrointestinal tract, has been released for sale by E. R. Squibb and Sons, New York. It is supplied in 0.5 Gm. tablets, in bottles of 50, 100 and 1,000, and as a powder in 4-ounce and one-pound bottles; also in 3.5 Gm. envelopes in packages of 12.

Sulfaguanidine is distinguished from other sulfonamide derivatives by its low absorbability. This causes it to remain in the intestinal tract and exert its anti-bacterial influence therein. Consequently, it is useful in enteric infections, such as acute bacillary dysentery, and also as a preoperative and postoperative measure in surgery of the lower intestinal tract.

Like the other sulfonamides, sulfaguanidine has high anti-bacterial activity. Unlike them, and in spite of its relative solubility in water, it diffuses to a much less extent through the intestinal wall. It is, therefore, possible to obtain a relatively high effective concentration of the drug in the intestine itself (200 mg. per 100 cc.) with little penetration into the circulation and consequent systemic effects (1 to 4 mg. per 100 cc. concentration in the blood).

A tasteless drug, sulfaguanidine is administered either in tablet form or as powder in water or similar medium. Rather large doses appear to be required, even for children, but the total period of treatment should not exceed fourteen days.

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JULY, 1941

THE CLEVELAND MEETING OF THE AMERICAN MEDICAL ASSOCIATION

Cleveland proved an ideal host city for the ninety-second annual meeting of the American Medical Association. The registration, slightly more than 7,000, was below the record breaking attendance of the New York meeting last year, but it exceeded by more than 1,200 the attendance at the 1934 meeting in Cleveland. The hotels were taxed to the utmost to accommodate those who came.

As usual, the proceedings of the House of Delegates and the papers read before the scientific sessions will be published in the *Journal of the A. M. A.;* therefore no attempt will be made to give a detailed account of the meeting here. Only predominant impressions will be recorded.

This year North Carolina had three delegates, all of whom attended every meeting of the House. One was placed on the Reference Committee on Medical Education. In the first session Monday morning, following the addresses of the Speaker, the President, and the President-Elect, and the various routine reports scheduled, a great number of resolutions were introduced. These were assigned to appropriate reference committees for discussion, amendment, approval, or disapproval at later meetings. The resolutions offer a fair idea of the trend of medical opinion in the country. This year it was apparent from the resolutions, the discussion on the floor of the House, and the table and lobby conversations that the preparedness program, with its effects upon the practice of medicine, held the center of the stage. The A. M. A.'s Committee on Medical Preparedness, under the chairmanship of Dr. Irvin Abell, has done an enormous amount of work in listing and classifying physicians for service, either military or civil. The report of this committee, published in the *Journal of the A. M. A.*, is a valuable contribution.

A resolution was passed asking that the military service of medical students and interns be deferred until completion of their training It is hard to believe that the government will be so short-sighted as to fail to adopt this policy. As hard-pressed as is England, her medical students are exempt from military service.

Naturally great interest was shown in the trial of the American Medical Association. By unanimous vote, the Trustees of the Association were authorized to appeal from the verdict of the jury. The resignation of Chief Justice Hughes, however, making way for still another New Dealer on the Supreme Court, made most of the delegates rather pessimistic about the final outcome.

Another significant trend was the demand of the general practitioners for more recognition. A number of resolutions from various states were introduced asking: (1) for a section on general practice, and (2) for the creation of a Board to certify competent general practitioners. The first request was granted. The second was not approved, on the ground that it would further complicate the process of specialization, and that it might work a hardship on many worthy medical men. Incidentally, it was apparent that there is a strong undercurrent of dissatisfaction with the business of certifying specialists generally, and with the autocratic methods used by some of the boards.

A resolution was introduced by the only woman member of the House, Dr. Emily Barringer of New York, asking that the House approve placing women physicians on an equal footing with men, so far as military service is concerned. This resolution was disapproved by the Reference Committee on Executive Session, with the explanation that the authorities in charge of the matter had

already vetoed such action. A motion was heartily and unanimously passed, however, commending the women for their patriotism.

As the result of a study being made by Dr. Reginald Fitz, it was recommended that an annual examination of medical students and interns be made, since an undue proportion have been found to have tuberculosis.

North Carolina can take pride in the unanimous election of Dr. Fred W. Rankin, of Lexington, Kentucky, as President-Elect. Dr. Rankin was born in Mooresville, and graduated from Davidson College. He is a first cousin of Dr. Watson S. Rankin of Charlotte, and Dr. Sam W. Rankin, of Winston-Salem.

Dr. Rankin had no opposition. Also without a contest the following officers of the American Medical Association were elected: Charles A. Dukes, Oakland, California, Vice President; Charles W. Roberts, Atlanta, Georgia, and Ernest E. Irons, Chicago, Trustees. The veteran Secretary and General Manager, Olin West, was re-elected, as were Herman Kretschmer, of Chicago, Treasurer; H. H. Shoulders, of Nashville, Tennessee, Speaker; Roy W. Fouts, of Omaha, Vice Speaker; and Walter F. Donaldson, of Pittsburgh, member of the Judicial Council. The only contests were for membership on the Council on Medical Education and Hospitals, and were made necessary by a provision that "One member shall be elected annually by the House of Delegates on the nomination of the Board of Trustees." Since the presentation of only one name by the Board would be tantamount to election by the Board, three nominations were presented. Dr. Harvey Stone, of Baltimore, was elected to succeed Dr. Fred Moore, deceased. Then Dr. Rankin created another vacancy by offering his resignation from this Council, and Dr. Russell H. Haden, of Cleveland, was elected to fill his place.

The selection of a place of meeting for 1944 resulted in a contest between St. Louis and Philadelphia, in which St. Louis won by an overwhelming majority. Atlantic City and San Francisco had already been chosen for 1942 and 1943 respectively.

In keeping with the national policy of fostering friendly relations with South American countries, it was agreed that the 1942 meeting in Atlantic City should be a Pan-American affair.

PUBLIC HEALTH AND PREVENTIVE MEDICINE

The terms "public health" and "preventive medicine" are so often joined together that, in the minds of many, they seem to have become synonymous. A moment's thought will show that this is an error. Every physician practices "preventive" medicine by anticipating the consequences of disease in the patient, and preventing them if possible, but he does not practice the specialty known as "public health". By preventing certain infectious diseases—smallpox for example—by vaccination, he contributes to the health of the general public, but this is only a by-product of his work; his days are rightfully filled with the care of individuals, not with the health of people in the mass, or public health. This is the business of physicians and nurses trained in a special technique which differs so widely from that of the practicing physician that separate schools have been founded for the education of public health officials.

It is true that preventive medicine in the form of vaccination against smallpox, diphtheria, scarlet fever, tetanus and other preventable diseases has been practiced extensively by public health officials, largely because the practicing physician has either been neglectful in the discharge of his duty or has made the procedures so costly that patients have sought the less expensive public health services. Here is a source of income that is lost to the physician because of poor organization. In some communities the medical society has designated certain days on which all physicians will do any vaccination for one dollar. It is in this field that the practitioner of pediatrics comes closest to the practice of public health.

The confusion of "public health" with "preventive medicine" is not merely a matter of words, for pressure is being placed on our medical schools to install departments of "public health and preventive medicine". Many schools have yielded to this pressure, which often has been financial in nature. The question is one that deserves the careful thought of medical educators, for the school curriculum is crowded, and constant pressure for special courses ("legal medicine" or medical history, for example), under the plea of broader training for the physician, is all too apt to narrow his opportunities for acquiring the essentials and fundamentals of medicine.

Of legal medicine all he really needs to know is to keep out of court if he can and to tell the truth when he cannot. If his teachers and textbooks cannot awaken in him a desire to read for himself in the history of his profession, then lectures on this subject will only provide him with a quiet hour of somnolence. A broad culture based on a love of art, music and literature—on those things often called the humanities—is highly desirable for a physician, but this is a matter of innate ability, previous training and self-culture, and is not to be expected in the curriculum of the medical school.

It is desirable that the student should have some general information upon "public health", such as should form part of any good course in bacteriology; but when his time is largely wasted by a series of lectures and field demonstrations in the minute technique of public health work, he is being made the victim of misguided enthusiasm. It is impossible to train a medical student properly without inculcating in him the principles of "preventive" medicine, and he can safely leave the practice of "public health" to those specially trained in that art and mystery.

REPORT OF THE NATIONAL PHYSICIANS' COMMITTEE

On Thursday evening of the American Medical Association meeting, a dinner meeting of officers and state committeemen of the National Physicians' Committee for the Extension of Medical Service was held in the Cleveland Hotel. Those who attended this meeting were really amazed at the report of the Executive Administrator, Mr. John M. Pratt.

When the National Physicians' Committee was organized in November, 1939, its objectives were:

1. To make possible the providing of medical service to the indigent and those in the low income groups, and insure the most widespread distribution of the most effective methods and equipment in medicine and surgery.
2. To assume the responsibility of countering destructive propaganda by familiarizing the public with the facts in connection with the methods and achievements of American Medicine.

Mr. Pratt told how a steadily increasing campaign of publicity is carrying to the nation the achievements and ideals of American medicine, and its superiority over European systems. The first step in this campaign was the publication and widespread distribution of the booklet, "Priceless Heritage"; the second, two double-page advertisements in the *Saturday Evening Post;* the third, publication—sponsored by local medical societies—of full page advertisements in about ninety influential daily newspapers; and fourth, editorial releases mailed to more than 12,000 newspapers, reaching more than forty million people. Some of these releases have been traced through hundreds of papers, often in the editorial columns.

As one of the speakers at the meeting said, "In the National Physicians' Committee the American medical profession possesses an organization potential to accomplish more for education of the American people regarding the fundamental standards inherent in the establishment of a high quality of medical service for the people of the United States, than it could possess in any other organization. . . .

"There exist in the United States many professions and groups which have for their objective the creation of a new technique in medical practice which would put the layman rather than the physician in charge of setting standards and providing medical service. So long as these professions and groups continue to exist and to grow in numbers, just so long will there have to be continuously in the forefront for the protection of medical science, an organization such as this, which can carry on not only an effective defense but an effective warfare."

The National Physicians' Committee has amply justified its existence, and deserves the continued support of the medical profession. It is doing the very thing for which the doctors of this state and others were clamoring long before it came into existence; but it cannot exist and continue to fight our battles without funds. It is to be hoped that North Carolina doctors will continue their aid to this organization. Individual contributions are, of course, welcome; but for county societies to send contributions from their funds will be more effective, and less burdensome to the individual members. Those societies that hold frequent dinner meetings might well omit one or two dinners during the year, and send the price to the National Physicians' Committee, the Pittsfield Building, Chicago.

Let us not accept the defeatist attitude that political control of medicine is inevitable. The House of Delegates voted unanimously for the American Medical Association to appeal from the weird verdict which the jury rendered in its trial. It is true that the resignation of Chief Justice Hughes made room for the seventh New Deal appointee to the Supreme Court. Even so, let us remember that "the Supreme Court follows the election returns," and that "in the final analysis, the public's opinion of the quality and effectiveness of medical service will become the deciding factor in the settlement of the problem."

It is possible to convince the public of the essential rightness of the American medical system, and the National Physicians' Committee offers the means to do it.

EDITORIAL NEWS NOTES—A.M.A. MEETING

The opening meeting on Tuesday night was characterized by a high order of speaking. The remarks of Dr. Charles T. Way, President of Cleveland's Academy of Medicine, introducing Dr. Van Etten, were short and to the point, as were Dr. Van Etten's call to order and his introduction of the other speakers. The welcoming addresses of Dr. Skipp, President of the Ohio State Medical Association, of Governor Bricker, and of Mayor Blythin were all crisp and easy on the ear. Dr. Lahey, as is well known, is a gifted speaker, and rose to the occasion in his address, "Current Problems of American Medicine", which is the leading article in the *Journal of the A.M.A.* for June 7.

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The music at the Delegates' Dinner was furnished by doctors and dentists, and the musical feature of the opening General Meeting was a violin solo by Dr. Jerome Gross, a surgeon, who was accompanied by a pathologist, Dr. Rafael Dominguez.

* * *

Many veteran delegates felt keenly the absence of those splendid gentlemen and doctors of the old school from Chicago, Dr. Charles B. Reed and Dr. Charles J. Whalen. Both of these have died since the 1940 meeting. Lifelong friends, they were not separated long by death.

It is doubtful if the American Medical Association ever had a more popular president than Dr. Van Etten. He was cheered to the echo after his address at the opening meeting of the House of Delegates, and again when he spoke at the annual Delegates' Dinner. In his after-dinner speech he said that he was glad to have served the cause of organized medicine, but that he was looking forward to the greatest privilege a doctor could have—that of taking up his stethoscope and resuming his private practice.

* * *

The award of the distinguished service medal to Dr. James Ewing, of New York, met with universal approval. The medal was presented during the opening General Meeting by Dr. Lahey.

* * *

North Carolina was well represented at the A. M. A. meeting. At least forty-six doctors from the state were registered, and eight appeared on the program.

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Friday—the last day of the meeting—all the exhibits were closed at noon. That afternoon quite a respectable representation from the medical profession watched Bob Feller shut out the Philadelphia Athletics while his mates scored two runs.

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The official representative of the Canadian Medical Association, Dr. T. C. Routley, was present and addressed the House on its opening session. His words were few, but exceedingly well chosen.

CONGRATULATIONS, DR. HALL!

In the press of reporting the annual meeting of the State Medical Society, an event of great importance to North Carolina doctors was overlooked in last month's issue of this Journal. The American Psychiatric Association, at its annual meeting in Richmond, May 5-9, elected Dr. James K. Hall, Superintendent of Westbrook Sanatorium, as its President. A more worthy leader could not have been found. The NORTH CAROLINA MEDICAL JOURNAL, on behalf of the membership of the State Society, extends its heartiest congratulations—as sincere as belated—to this distinguished native son of North Carolina.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

DUKE HOSPITAL

DR. JAMES P. HENDRIX (reading the clinical summary):

This patient, a 53 year old, married white man who worked in a lumber yard, was seen first in the Medical Outpatient Clinic, and was admitted to the hospital two days later. He complained of chronic cough and of pain in his chest for one week.

The patient's mother and one brother had died of influenza. The father died of a "stroke". One sister had goiter. Three brothers and two sisters were living and well.

The patient had influenza in 1918, followed by pleurisy or pneumonia. He had pleurisy again in 1928. He had typhoid fever at the age of 11. For about twenty years he had had episodes (lasting three to four weeks) of gnawing pain around the umbilicus. The pain usually was relieved by food. Twelve years ago he had bloody diarrhea for two weeks and after that had hemorrhoids, which were painful at times. Six months before admission there was a "boil high in the rectum" which ruptured and drained purulent material for two weeks.

While the patient thought that he had not been strong since his illness with influenza in 1918, he had carried on successfully in a position requiring hard work. About three years before admission, after having a mild cold for about a week, he developed wheezing respiration while at work one day. This difficulty in breathing became more severe toward night and his physician administered a hypodermic, which brought relief in about thirty minutes. Every winter after that he caught cold easily and kept a chronic cough most of the time. The attacks of difficult breathing recurred occasionally, and upon two or three occasions required hypodermics, which always brought relief.

About one week before admission his cough became worse and he developed a dull substernal aching pain, which radiated through to the back between the shoulder blades. He also felt chilly at times and suffered from general malaise.

In the Outpatient Clinic the patient was observed to be poorly nourished but did not appear particularly ill. The temperature was 37.3 C., pulse 100, respirations 22, and blood pressure 120 systolic, 78 diastolic. The submaxillary and inguinal lymph nodes were slightly enlarged. There was a small red area behind the right ear at the site of a healing furuncle. The left pupil was larger than the right and both reacted rather sluggishly to light. The retinal arteries were narrowed and tortuous. There was slight venous engorgement in the neck. The chest was moderately emphysematous, expansion was poor and inspiratory musical rales were heard over both lungs. The heart was thought to be slightly enlarged to the left and the sounds were distant. There was very slight peri-umbilical tenderness. On rectal examination no hemorrhoids or masses were detected but there was some deep tenderness high up in the rectum. Neurological examination was negative.

At this visit the hemoglobin was 79 per cent; the urine examination and the blood Wassermann and Kahn reactions were negative. An x-ray film of the chest showed some soft diffuse increase in peribronchial markings, extending downward from both hila, consistent with asthma. X-ray study of the digestive tract on the day after the first visit showed delayed emptying of the stomach due to dilatation of the descending portion of the duodenum, with some reverse peristalsis. The radiologist interpreted the findings as suggestive of mesenteric ileus.

Two days after his initial visit, the patient returned to the clinic and reported that he had not been feeling well and had had three shaking chills since his first visit. The temperature was found to be 39.3 C., pulse 120, and respirations 32. He appeared much sicker than he had two days earlier, and was admitted to the hospital. The physical findings after admission were similar to those in the clinic, but the patient appeared acutely ill. The inequality and sluggishness of the pupils were again noted, as were slight enlargement of the heart to the left, distant quality of the heart sounds, and slight engorgement of the neck veins. The musical rales were less prominent than before, but a few fine and medium rales were heard at the bases of both lungs. There was no edema or cyanosis.

A blood count showed 12 Gm. of hemoglobin (78 per cent), 4,490,000 red blood cells, and 17,940 white blood cells, with 85 per cent polymorphonuclears, of which 18

per cent were young forms. The sedimentation rate was 32 mm. per hour. Fresh and stained smears of the blood showed no abnormalities. The blood Wassermann and Kahn reactions again were negative. The urine was negative, except for an occasional white blood cell and granular cast. The sputum showed many gram-positive cocci, but no diplococci or acid-fast organisms. The blood nonprotein nitrogen was 38 mg. per 100 cc. and the blood bromide was 66 mg. per 100 cc.

An electrocardiogram on the day after admission showed slurred QRS complexes in all leads and elevation of R-T segment in leads I, II, and III. Repetition of the x-ray of the chest on the same day indicated partial clearing of the soft infiltration in the median part of the lungs, but the heart was observed to be considerably larger than before. A third film five days after admission, and four days after the second one, showed more pulmonary congestion and greater enlargement of the heart.

Blood culture taken on the day of admission to the hospital was positive for hemolytic staphylococcus aureus. There were three colonies per cubic centimeter. There was an increasing number of colonies in blood cultures on the next two days.

From the time of admission until death the patient remained acutely ill. His temperature ranged between 38 and 39 C. most of the time, and his white count from 14,000 up to 25,000, with 80-90 per cent polymorphonuclears. On the second hospital day, venous pressure was found to be slightly elevated—110 mm. of water. In view of the increasing size of the cardiac shadow, the distant heart sounds, and the elevation of venous pressure (without evidence of cardiac failure), and in the presence of evidence of acute infection, a tentative diagnosis was made of acute pericarditis with effusion. (This diagnosis was made before the result of the blood culture was reported.) In the evening of the same day a definite pericardial friction rub was heard over the lower sternum, which confirmed the tentative diagnosis. The patient was placed on sulfapyridine and later on sulfathiazole. He also received 100,000 units of staphyloccus antitoxin intravenously.

On the fifth hospital day, after the venous pressure had risen gradually to 200 mm. of water, a pericardial paracentesis was done and 150 cc. of cloudy fluid was removed, from which hemolytic staphylococcus aureus was cultured. The pericardium was tapped on each of the three following days, with the removal of 400, 300 and 10 cc. of fluid, which then had become blood tinged. Gentian violet was injected into the pericardium after the tap on two occasions, but did not sterilize the pericardial cavity. Several transfusions and repeated infusions of fluid were given.

During this time the patient was very weak. He continued to complain of substernal pain, took fluids and nourishment poorly, and had considerable discomfort from abdominal distention. However, by the seventh and eighth hospital days there appeared to be a little improvement. The temperature fell below 38 C., and blood culture showed less than one colony per cubic centimeter. On the ninth hospital day surgical drainage of the pericardium was carried out under local anesthesia. Approximately 200 cc. of thin sanguinopurulent material was aspirated, and several large clots were removed. Drains were left in the pericardial cavity. The patient stood the procedure well and his condition remained about the same. There was moderate serosanguineous drainage from the operative wound.

On the morning of the second day after the operation it was noted that the patient was slightly cyanotic and that respirations were labored. He improved after being given coramine and a transfusion. At 4:30 p. m. on the same day, while straining in an attempt to expel flatus, the patient suddenly began to bleed profusely from the operative wound. The pulse was rapid and weak, he became cold and clammy, and blood pressure dropped to 100 systolic, 60 diastolic. It was estimated that 300-400 cc. of blood was lost. Pressure was applied to stop bleeding; the patient was treated for shock and given another transfusion. He improved temporarily. However, about four hours later he rapidly went into shock again; this time he failed to respond to stimulants, and expired.

Discussion

DR. HENDRIX: Generally speaking, pericarditis is a secondary condition. It may occur following direct infection of the pericardium from wounds, and it is sometimes associated with uremia and coronary occlusion. However, most cases of pericarditis follow infection elsewhere in the body. It is not difficult to understand why this patient developed pericarditis; he had hemo-

lytic staphylococcus septicemia. Nor is it surprising that he failed to survive this grave condition, which has a very high mortality rate. However, we have no satisfactory explanation for the onset of the staphylococcus blood stream infection, and we do not understand the events leading immediately to the patient's death.

Concerning the onset there appear to be at least three possibilities: (1) There was an exacerbation of the patient's chronic cough with chest pain at the time of the onset of the present illness. X-ray showed some infiltration of both lower lobes. Hence, the patient might have had some bronchopneumonia, due to staphylococcus, and the organism may have gained entrance to the blood stream through the lungs. (2) In the history is mentioned an abscess "high in the rectum" which drained pus for two weeks about six months prior to the present illness. It is possible that the patient had a perirectal abscess which ruptured at that time, but which re-formed (there was deep tenderness in the rectum when he came to the hospital) and furnished the portal of entry for the organism. However, one would hardly expect to find the staphylococcus in such a lesion. (3) The most important possibility for the source of the infection was a lesion so insignificant that it was not mentioned in the clinical history, although it was detected during the first physical examination. You will recall that when the patient entered the clinic the examiner noted the presence of a small subsiding furuncle behind the left ear. Inasmuch as the organism found in the blood, and later in the pericardium, was a staphylococcus, it seems most likely that it came from this lesion.

Concerning the events immediately preceding death, it can be stated that death was precipitated by shock and that shock was produced by the severe bleeding which was observed from the operative wound. The source of this hemorrhage is unknown and we must look to the pathologist for an explanation. As in any other operative procedure, bleeding may have occurred as a result of the opening of an artery which was tied at operation. The internal mammary artery would have been encountered during this operation, and probably was ligated and cut. It is a vessel of good size, and could have produced the bleeding observed if the ligature had slipped. However, out of respect to our surgical colleagues, it must be said that such an accident is very unlikely. The next possibility is that the purulent infection eroded into a vessel within the pericardial cavity and thus produced the hemorrhage. If this was the case one can not do more than speculate as to what structures were involved.

It seems apparent then that this patient had: (1) staphylococcus septicemia probably originating from a furuncle behind the left ear; (2) secondary acute purulent pericarditis, due to the same organism; (3) severe hemorrhage into the pericardial cavity. The inequality and sluggishness of the pupils is at least suggestive of metastatic brain abscess, which might have followed the septicemia. However, there were no other neurological signs to support this idea. In addition, one might expect to find, chiefly because of the history, a perirectal abscess and possibly an old peptic ulcer as well.

Pathological Report

DR. DOUGLAS H. SPRUNT: The anatomical diagnosis in this case is: mediastinal abscess at the root of the aorta and pulmonary artery (staphylococcus aureus); fibrinous pericarditis; mycotic aneurysm of the aortic wall; pulmonary arteritis; pulmonary valvular endocarditis; rupture of the mycotic aneurysm with hemorrhage; central necrosis of the liver. (Permission to examine the brain was not given.)

The course of events in this case was as indicated in the anatomical diagnosis. The patient had staphylococcic bacteremia, probably originating from the furuncle behind the ear. Some of these organisms localized in the mediastinum, forming an abscess. These organisms invaded the aorta and pulmonary artery, thus serving as a focus for a generalized blood stream infection. The invasion of these organisms into the wall of the aorta resulted in its destruction, with the formation of a mycotic aneurysm which eventually ruptured, causing hemorrhage and death.

Dehydration Caused by Fever.—Fever induces a rapid loss of water from the body, and this should be compensated for. Some years ago Dr. Du Bois said that the best way to guide adequate fluid intake is by observing the urine to see that it is dilute and colorless. That is a better guide than prescribing that the patient should have a certain number of cubic centimeters daily.—Walter L. Niles, in a Conference on the Management of Fever, New York State Journal of Medicine, 40:1740 (December 1) 1940.

CASE REPORT

North Carolina Baptist Hospital

By Dr. W. L. Grimes and Dr. Clifford Gryte

A white male child 12 years of age was admitted to the hospital complaining of pain in the left upper quadrant. The onset of the illness was somewhat indefinite. The patient stated that for the past year he had been having a dull aching pain and a feeling of fullness in the left upper quadrant, which was aggravated by eating a large meal or running. The pain was present most of the time, but varied in severity from time to time. Accompanying this pain was vomiting, which usually followed a rather hearty meal, laughing or crying. Nausea was usually not marked.

The patient had noticed a progressive enlargement of his abdomen for the past six months, and a gradual loss of weight to the extent of 10 pounds over the same period of time.

The mother noticed that the child did not look as well as he had, and that he appeared rather apprehensive and refused to play with other children.

The past history was non-contributory. The patient's first cousin had had a nephrectomy because of a tumor and had died a month or two following the operation.

Physical examination revealed a fairly well developed and well nourished white male child who did not appear acutely ill. Examination of the lungs revealed elevation of the left diaphragm. There was a large, smooth mass in the left upper quadrant which moved on respiration and presented a notch on its medial border. It was only moderately tender on deep palpation. The liver was felt about two fingers' breadth below the costal margin. The blood pressure was 120 systolic, 76 diastolic; the pulse, 120; temperature, 100 F.; respirations, 22.

Examination of the urine on admission showed an acid urine with a 1 plus reaction for albumin, and no sugar. There were a moderate number of hyaline and granular casts, an occasional white cell, and a specific gravity of 1.010. Repeated examinations showed a gradual increase in albumin and casts of various types. The nonprotein nitrogen was found to be 30 mg. per 100 cc. A kidney function test by the use of phenolsulfonphthalein revealed 53 per cent elimination in two hours. There were 4,500,000 red blood cells, with a hemoglobin of 80 per cent; there were 6,200 white cells with 64 per cent polymorphonuclears and 36 per cent lymphocytes. Repeated blood counts revealed a progressive fall in red cells with a corresponding drop in hemoglobin.

Roentgen Diagnosis

By Dr. J. P. Rousseau

Tumor of the left upper abdomen.

Comment: The abnormal findings on the left pyelo-ureterogram are large soft tissue density in the left upper abdomen, obscured left kidney outline, slight outward and downward displacement of the kidney, and medial displacement of the upper third of the ureter. The kidney pelvis and calices do not seem to be distorted or deformed, and this fact tends to exclude the possibility of a primary neoplasm. On the flat film of the abdomen calcium deposits could be seen within the tumor itself, and on the study of the stomach with a barium meal the stomach was found to be markedly displaced to the right side and anteriorly. This would indicate the presence of a retroperitoneal tumor, and I believe that the possibility of a kidney lesion must still be considered. It will not be possible to make a positive diagnosis in this case without an exploratory operation.

Clinical Impression

I. Splenomegaly.
   Cause: 1. Gaucher's disease.
   2. Tumor of the spleen.

An exploratory laparotomy was performed and a very large spleen was removed. Considerable shock accompanied the procedure, but the patient made a good recovery with blood plasma and transfusion.

Surgical Pathological Report

By Dr. J. C. Reece

Gross Description: The specimen consists of the spleen, which weighs 4 pounds and 3 ounces, or 1530 Gm., and measures 21.5 cm. in its greatest diameter. The outer surface is dark red in color and mottled in appearance. Several indurated plaques can be found upon the anterolateral surface; in other areas the splenic substance shows considerable degrees of softening. A notch is found on the right border of the spleen that measures about 1.5 cm. in depth. On section

through the splenic substance, a large, lobulated and nodular tumor mass is found measuring 16 cm. in its greatest diameter, completely replacing the splenic substance except for a small rim on the outer surface measuring from a few millimeters to about 2 cm. in thickness. In some places the lobulated masses present themselves just beneath the capsule and in other areas they show definite infiltration throughout the splenic substance. Sections through the tumor show the stroma to be light gray, smooth, homogeneous in texture, and glistening. In some portions dark yellow, quite friable, degenerative areas are found.

A small lymph node is found at the hilus of the spleen. The lymph node measures 2 cm. in its greatest diameter and is lobulated on its outer surface. On section the cut surface is grayish white, firm and homogeneous in texture. Some portions show considerable degrees of fibrosis.

Microscopical Description: Sections from the tumor nodule found within the spleen show the stroma to be extremely cellular, composed of rather irregular cells varying considerably in size and shape and lobulated in many portions; the nuclei of the cells take a dark purple stain. In some portions giant cell formation is observed, and a considerable number of cells are undergoing mitotic changes. The stroma in many portions is fibrous and in other areas shows a considerable degree of degeneration and infiltration. Sections coming from the splenic substance itself show a considerable degree of necrosis and destruction of the lymph follicles in areas. In other portions the splenic tissue is heavily infiltrated with red blood corpuscles. Sections from the hilus lymph node show destruction of the lymph follicles and marked degrees of fibrosis. Large groups of cells, identical with those described within the splenic substance, are found within the lymph node removed from the hilus.

Diagnosis: Reticulum cell sarcoma of the spleen.

The patient's postoperative course was uneventful. Since his discharge, about one month ago, the patient has gained 12 pounds. He seems to be in good health.

A man who has a theory which he tries to fit to facts, is like a drunkard who tries his key haphazard in door after door, hoping to find one it fits.—The Papers and Speeches of John Chalmers DaCosta, Philadelphia, W. B. Saunders Co., 1931, p. 49.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Malpractice: Leaving gauze sponge in operative wound raises inference of negligence sufficient for consideration by jury. Assistant also liable.

This case was considered by the North Carolina Supreme Court upon an appeal of the defendants, a surgeon and his assistant, from a judgment rendered in the Superior Court of Buncombe County affirming the judgment of the general county court of Buncombe County. Recovery had been made against the defendants for injuries which the plaintiff alleged she sustained through the negligence of the defendants in leaving a gauze sponge deeply buried in the side of her leg or hip, about one-half inch from the thigh bone, where it had been placed during an operation performed upon her by the defendants. Proof that the gauze had been left in the surgical wound was complete. As a result of this alleged negligence suppurating channels or sinuses were formed in the leg, beginning in the vicinity of the gauze sponge and extending through the intervening tissue to the exterior, where quantities of offensive pus were discharged, until a second operation was performed some months after the first. There was evidence sufficient for the jury to consider showing proximate causative connection between the presence of the pad and certain deleterious conditions complained of, among them excessive pain, inconvenience, physical and mental discomfort and suffering, disorder of the nervous system, and possibly a permanent injury through the stiffening of the knee joint. The evidence also indicated that both of the defendants had assisted in placing the gauze sponges in the wound. Both defendants testified as to the methods employed during the operation, and the manner in which the gauze sponges, nearly 100 in number, had been handled. They testified, both from observation and as experts, that great care had been exercised in the usual and customary manner to prevent leaving any sponges in the wound. They described the method as "palpating" or feeling for the sponges, and testified that this was done thoroughly and with due care. Several experts were examined, who approved of the methods employed by the defendants. Their evidence, however, was largely directed to approval of the general treatment given the plaintiff and to the general results produced. The most important question for consideration by the Supreme Court was the refusal of the trial judge to grant the defendants' motion as of nonsuit made upon trial. The Supreme Court felt that this refusal was absolutely correct, despite the testimony introduced tending to show that due care had been exercised in performing the operation. As was to be expected in this case, the doctrine of res ipsa loquitur (the thing speaks itself) was invoked, and according to the opinion of the Supreme Court applied in this instance, but the Court also held as follows: "The fact of leaving a sponge in plaintiff's body is so inconsistent with due care as to raise an inference of negligence entitling plaintiff to go to the jury irrespective of the application of the doctrine of res ipsa loquitur." Therefore the judgment for damages of the lower court was affirmed. From the decision rendered in this case it is reasonable to assume that it is almost impossible to offer testimony suitable to offset the inference of negligence raised by definite proof of leaving a sponge in an operative wound.

Another phase brought out in this suit which should perhaps be of interest to interns, surgical residents, and other assistants is that both the

surgeon and the assistant were held equally responsible. The law regarding this is as follows: "Where one surgeon assists another in performing an operation and both assist in placing gauze sponges in the wound, both are charged with the duty of exercising due care to remove all the gauze sponges."—N. C. Supreme Court Report, Book 219, p. 178.

CORRESPONDENCE

HEADQUARTERS FIRST MILITARY AREA
Knoxville, Tennessee
June 23, 1941

Dr. Wingate Johnson, Editor,
North Carolina Medical Journal,
Winston-Salem, North Carolina.

Dear Sir:

The War Department has just announced an extensive program to provide for the procurement of Doctors for the Army of the United States during the next few years. Since medical officers are a vital part of the national defense program, it is believed that the readers of your Journal will be interested in the program by which junior and senior students of recognized medical schools and those graduate students who are now serving their internship may be assured of completing their education and training before being called into the service of their country.

It is contemplated that all bonafide junior and senior male medical students, who are in good standing, meet the physical requirements for commission, will, upon application, be appointed second lieutenants, in the Medical Administrative Corps of the Officers' Reserve Corps. The students commissioned under this provision will be members of the armed forces of the United States, and will, upon application to their local draft board, be placed in Class I-C, and will not be called into active military service by the Selective Service System.

Application for appointment in the Officers' Reserve Corps, is absolutely voluntary on the part of the students, but it is expected that they will be allowed to finish their education and training before being called into active military service, and that when they are called, upon completion of their training, that they will have the rank and pay of an officer rather than that of a private in the Army.

It is expected that as the students actually complete their education and receive their degrees, they will, upon application, be transferred from the Medical Administrative Corps to the Medical Corps Reserve, and given the rank of first lieutenant. It is contemplated that the graduates will be allowed to serve one year of internship before being ordered to active duty as an officer in the army of the United States for a period of one year.

Those graduates of recognized medical schools, who are now serving their one year's internship, may make application for appointment as first lieutenant, medical corps reserve, provided they meet the physical requirements, and will agree to accept active duty for one year as soon as they have completed their internship. Those interns who take advantage of the opportunity offered and make application for commission and are subsequently appointed a commissioned officer in the Officers Reserve Corps, will not be drafted by the Selective Service System, but will be called into service as an officer, after they have completed their training.

In view of the fact that your publication has such a large circulation among the various medical colleges, hospitals, and doctors in general, it is believed that, if you will give this vital information wide publicity in the next issue of your medical journal, you will be rendering a patriotic service in our national defense effort; and in aiding the young doctor to assure himself that he will be permitted to complete his education and training without fear of being called into active military service until such time as he has become a qualified physician, you will be helping to maintain the medical profession on the high plane which it has always held.

Yours very truly,

CLIFFORD JONES,
Colonel, C.A.C.,
Executive.

Legal Reasoning. — Fortunately, rancorous disputes have nowadays largely ceased to affict the relations of real scientists. Yet there is still far too much of that spirit in the world at large. It has been well said that "Most men think with their emotions rather than their intellects." The ancient method of verbal combat is still employed in our law courts and legislative halls. Each participant adheres to his thesis. Search is then made for evidence to support it and at the same time to refute its opponents. An equal effort is made to suppress or depreciate any facts that may prove to be embarrassingly adverse. — Eliot Blackwelder: Science and Human Prospects, Science, 93:361 (April 18) 1941.

BULLETIN BOARD

SECRETARY'S MESSAGE

This first month has been a very busy one for your secretary: moving the office from Roanoke Rapids to Red Springs; trying to familiarize myself with some of the details of the office; answering some of the numerous letters I have received from many of the doctors—and some of the doctors' wives—all over the state.

With the able assistance of Miss Margaret Long things were beginning to take shape. Then the Navy stepped in; she gave it priority and left very unexpectedly to go on her honeymoon. This accounts for the delay in answering some of my mail.

In addition to all this I have been very much concerned about the recent decision against the American Medical Association and the fact that this decision may be sustained by the higher courts. Have you physicians of North Carolina considered how far reaching this may be in its effects?

We can do much as a society if every secretary of every organized county society sees that every physician in his county is a member of his society, with county and state dues paid up to date. An organized body working together can do much to crystallize public sentiment.

Abraham Lincoln said, "Public sentiment is everything. With public sentiment nothing can fail: without it nothing can succeed. Consequently he who molds public sentiment goes deeper than he who enacts statutes or pronounces decisions. He makes statutes and decisions possible or impossible to be executed."

Let's all get together and North Carolina will do her part.

Think it over seriously.

ROSCOE D. McMILLAN, M.D.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA

Dr. William deB. MacNider has just been elected President of the Society for Experimental Biology and Medicine for the coming year.

* * *

Dr. H. D. Bruner, Assistant Professor of Physiology in the School of Medicine, has been selected to write the section on "The Physiology of Blood" for Volume 5 of the **Annual Review of Physiology**, to be published in 1943. This selection is a tribute to Dr. Bruner's important research in the field of blood for the past few years.

* * *

Dr. H. G. Baity, Professor of Sanitary Engineering on the School of Public Health Faculty, has been appointed by the Surgeon General of the U. S. Public Health Service as a member of the Advisory Committee to formulate revisions of "The Treasury Standard for Drinking Water".

* * *

Dr. George B. Darling, President of the W. K. Kellogg Foundation, visited the School of Public Health of the University of North Carolina during May and gave an address on "An Over-View of the Michigan Community Health Project".

* * *

Dr. D. F. Milam, Professor of Nutrition of the School of Public Health, attended the National Conference for Nutrition and Defense in Washington during May. Dr. Milam read a paper "Nutrition Survey in a North Carolina Community" before Section III of the Conference.

Dr. J. B. Grant, a member of the staff of the International Health Division of The Rockefeller Foundation and Acting Director of the All-India Institute of Hygiene and Public Health, Calcutta, visited the School of Public Health for several days during the month of June.

* * *

Dr. Fred C. Kluth, a Fellow of the Rockefeller Foundation, will be in Chapel Hill this summer carrying on a serological survey of syphilis in Chatham County.

* * *

President W. A. Sanger and Dr. Fred Wampler, Professor of Preventive Medicine, of the Medical College of Virginia at Richmond, were recent visitors of the School of Public Health.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE

The following additions to the faculty of the Bowman Gray School of Medicine have been made:

Dr. Arthur Grollman, Research Professor of Medicine and Associate Professor of Biochemistry.

Dr. Robert L. McMillan, Associate Professor of Clinical Medicine.

Dr. Elbert A. MacMillan, Assistant Professor of Clinical Medicine and Neuropsychiatry.

Dr. John R. Williams, Jr., Assistant Professor of Medicine.

Dr. P. A. Yoder, Assistant Professor of Clinical Medicine and Physical Diagnosis.

Dr. W. DeK. Wylie, Assistant in Clinical Medicine.

Dr. J. C. Pass Fearrington, Assistant in Clinical Medicine.

Dr. E. Bruce Brooks, Assistant in Clinical Medicine.

Dr. E. S. Avery, Assistant in Clinical Medicine.

Dr. O. E. Wright, Assistant in Clinical Medicine.

Dr. B. B. Pool, Assistant Professor of Clinical Medicine and Allergy.

Dr. W. L. Kirby, Assistant Professor of Clinical Dermatology.

Dr. Wortham Wyatt, Assistant in Clinical Dermatology.

Dr. C. A. Street, Associate Professor of Clinical Pediatrics.

Dr. Glenn Pool, Assistant in Clinical Pediatrics.

Dr. Vernon C. Lassiter, Assistant in Clinical Surgery and Assistant Professor in charge of Industrial Medicine.

Dr. H. W. Goswick, Jr., Assistant in Clinical Surgery.

Dr. C. H. McCants, Assistant in Clinical Surgery.

Dr. E. L. Gilbert, Assistant in Clinical Surgery.

Dr. W. H. Sprunt, Jr., Professor of Clinical Surgery.

Dr. W. L. Grimes, Professor of Clinical Surgery.

Dr. H. G. Schwartz, Assistant Professor of Surgery in charge of Neuro-Surgery.

Dr. W. P. Speas, Assistant Professor of Surgery in charge of Ophthalmology.

Dr. R. A. Moore, Assistant Professor of Surgery in charge of Orthopedics.

Dr. F. K. Garvey, Assistant Professor of Surgery in charge of Urology.

Dr. G. C. Cooke, Assistant Professor of Clinical Surgery.

Dr. R. L. Wall, Assistant Professor of Surgery in charge of Anesthesia.

Dr. J. A. Harrill, Assistant Professor of Surgery in charge of Otorhinolaryngology and Bronchoscopy.

Dr. J. C. Watkins, Professor of Clinical Dental Surgery.

Dr. G. W. Holmes, Instructor in Clinical Orthopedic Surgery.
Dr. S. W. Rankin, Instructor in Anatomy and Clinical Otorhinolaryngology.
Dr. Edgar V. Benbow, Instructor in Clinical Surgery.
Dr. Fielding Combs, Assistant in Clinical Otorhinolaryngology.
Dr. V. Rex Sink, Assistant in Clinical Bronchoscopy and Otorhinolaryngology.
Dr. V. F. Couch, Assistant in Clinical Otorhinolaryngology.
Dr. H. LeRoy Izlar, Assistant in Anesthesia.
Dr. H. F. Munt, Assistant in Clinical Orthopedics.
Dr. C. S. Drummond, Assistant in Clinical Proctology.
Dr. R. W. Spicer, Professor of Clinical Obstetrics and Gynecology.
Dr. C. H. Mauzy, Assistant Professor of Obstetrics and Gynecology.
Dr. Paul W. Johnson, Assistant in Clinical Obstetrics.
Dr. C. N. Adams, Assistant in Clinical Obstetrics and Gynecology.
Dr. L. C. Ogburn, Assistant in Clinical Obstetrics and Gynecology.
Dr. Ruth Henley, Assistant in Clinical Obstetrics.
Dr. O. R. Keiger, Assistant in Clinical Obstetrics.
Dr. J. Roy Hege, Lecturer in Public Health.
Dr. R. L. Carlton, Lecturer in Public Health.
Dr. William Allan, Professor of Medical Genetics.
Dr. Paul David, Consultant in Medical Genetics.
Dr. B. A. Helsabeck, Assistant in Clinical Surgery.
Dr. T. W. Davis, Professor of Clinical Otorhinolaryngology.
Dr. B. N. Jones, Assistant in Clinical Otorhinolaryngology.
Dr. Robert T. Garvey, Professor of Clinical Urology.
Dr. J. F. Belton, Assistant in Clinical Medicine.
Dr. B. E. Pulliam, Assistant in Clinical Medicine.
Dr. R. R. Jones, Assistant in Clinical Medicine.
Dr. Anne Stephenson, Assistant in Clinical Obstetrics and Gynecology.
Dr. R. V. Wolfe, Assistant in Clinical Surgery.
Dr. D. C. Speas, Assistant in Clinical Surgery.
Dr. C. M. Norfleet, Jr., Assistant in Urology.
Dr. C. N. Herndon, Instructor in Medical Genetics.
Miss Florence Dudley, Assistant in Medical Genetics.
Dr. R. P. Morehead, Associate Professor of Pathology.
Dr. W. C. Thomas, Instructor in Pathology.
Dr. William A. Wolff, Consultant in Clinical Chemistry.
Dr. W. H. Fishman, Instructor in Biochemistry.
Miss Marjorie Swanson, Assistant in Biochemistry.
Dr. J. B. Whittington, Professor of Hospital Administration.
Dr. S. D. Craig, Associate Professor of Clinical Medicine.
Dr. E. S. Thompson, Instructor in Industrial Medicine.
Dr. G. E. Bradford, Assistant in Clinical Otorhinolaryngology.

News Notes from the State Board of Health

Raleigh.—From January 1, through May, this year, there were 34,444 babies born in North Carolina, which was just 1,973 in excess of the number born during the corresponding period of 1940, the State Board of Health reports. Births during that period exceeded the 14,424 deaths in the state by 20,020.

Maternal deaths were shown to be on the decrease, there having been only 161 during the first five months of 1941, as compared with 188 for the same period last year, a decrease of 27.

However, from January through May, vital statistics figures show, 709 persons in North Carolina were accidentally killed, as compared with 543 for the same period a year ago—an increase of 166. Most of these deaths resulted from traffic accidents.

There were, during the period of the compilation, 104 fewer deaths from pneumonia than occurred a year ago, 39 fewer deaths from tuberculosis and 23 fewer from diphtheria. Up to June 1, there had been only 28 diphtheria deaths in the state. Last year there were 51 during the first five months, 27 of these occurring in January alone, as compared with only 9 in January this year.

* * *

Recommendations adopted by the National Nutrition Conference for Defense, called by President Roosevelt, will be submitted to North Carolina's General Nutrition Committee for incorporation into the statewide program which was set up nearly two years ago, Dr. Carl V. Reynolds, State Health Officer, announced upon his return from Washington.

While an attendance of only 500 had been anticipated, there were 1,000 present from all sections of the United States, indicating the intense interest in the subject of nutrition as a means of winning the war.

The North Carolina committee will be called together very shortly for a conference, in order that the resolves of the Washington conference may be translated into action here, the Health Officer said.

* * *

The results in the tests for syphilis made on specimens from 136,756 of the 453,729 men who registered in October were recently compiled by Dr. John H. Hamilton, Director of the State Board of Health's Laboratory of Hygiene, where most of the tests were run. Of the total number of specimens tested, 11,500 showed a positive reaction, divided as follows: White men, 1,463, or 1.9 per cent; Negro men, 10,005, or 17.2 per cent, and Indian men, 82, or 5.7 per cent.

* * *

The Division of County Health Work's summary shows that, since July, 1940, five additional counties have established full-time, qualified, organized health departments, in addition to those functioning separately in six cities, which now brings approximately 95 per cent of our population the advantages that accrue. There are employed at the present time in these 81 counties and in the cities referred to, with the exception of Winston-Salem, reports from which are not included here, 667 full-time health workers. Should we add to this the 208 persons comprising the personnel of the State Board of Health, it would give a grand total of 875 fully trained men and women whose lives are dedicated to the task of removing those conditions which retard your health and well-being, through the means at their disposal.

A year ago, there were 175 maternity and infancy clinics, or centers, in 52 counties. The number of such clinics now has been increased to 240, extending fairly well over 67 counties. In this work about 200 practicing physicians have given aid to the health officers. There have been nearly 29,000 infant visits made to these clinics, while nearly 16,000 expectant mothers have reported for examination and advice.

Although there were 5,526 more women visiting maternity clinics in 1940 than there were in 1939, the syphilis rate dropped from 13.5 to 10.8 per cent in a single year, reflecting the efforts of those engaged in the fight against venereal diseases.

News Notes from the North Carolina Tuberculosis Association

A number of North Carolinians were elected to various positions at the annual meeting of the National Tuberculosis Association and the American Trudeau Society held in San Antonio last month. Dr. Paul P. McCain of Sanatorium, N. C., the retiring president of the National Tuberculosis Association, was elected to the Executive Committee of the National Tuberculosis Association and was succeeded by Dr. Bruce H. Douglas, Commissioner of Health, Detroit, Michigan, to the presidency. Dr. McCain also was elected to the Council of the American Trudeau Society and placed as Chairman of the Rehabilitation Committee of the Council. Dr. David T. Smith, Duke University, member of the Board of Directors of the North Carolina Tuberculosis Association, was made chairman of the program committee of the American Trudeau Society.

Dr. S. M. Bittinger, Superintendent of the Western Sanatorium, and a member of the Board of Directors of the North Carolina Tuberculosis Association, was reelected as a Director of the National Tuberculosis Association. Dr. Paul Ringer, of Asheville, and Dr. R. L. Carlton, of Winston-Salem, are other North Carolinians now on the National Board of Directors.

Frank W. Webster, Executive Secretary of the North Carolina Tuberculosis Association, was placed on the Rehabilitation Committee of the National Conference of Tuberculosis Secretaries.

* * *

Miss Ruby Lucille Franks, a student at Winston-Salem Teachers College, and Miss Cornelia A. Flynt, a student at Carver High School in Winston-Salem, were the state winners in the Eighth Annual College and High School Essay Contests sponsored by the National Tuberculosis Association and the North Carolina Tuberculosis Association.

Southern Pediatric Seminar

The Twenty-First Session of the Southern Pediatric Seminar will be held at Saluda, North Carolina, July 21 to August 2. Dr. Samuel F. Ravenel is Dean of the Seminar, Dr. Frank H. Richardson Vice-Dean, and Dr. D. L. Smith, Registrar. The Obstetrical Division is under the direction of Dr. Oren Moore, Dean. Model Maternal and Child Health Clinics will be operated under the direction of Dr Robert B. Lawson. There is a registration fee of $25. Accommodations may be secured by communicating with the Registrar, Dr. D. L. Smith, at Saluda.

The American College of Physicians

announces its
Twenty-Sixth Annual Session
to be held in
St. Paul, Minn.—April 20-24, 1942

Dr. Roger I. Lee, of Boston, is President of the College, and will be in charge of the program of General Sessions and Lectures. Dr. John A. Lepak, of St. Paul, has been appointed General Chairman, and will be in charge of the program of Hospital Clinics and Round Table Discussions, as well as local arrangements, entertainment, etc. Mr. Edward R. Loveland, Executive Secretary of the College, 4200 Pine Street, Philadelphia, will have charge of the general management of the session and the technical exhibits.

Other medical societies are urged to note these dates in order that conflicts in meeting dates may be avoided for mutual benefit.

Neuropsychiatric Society of Virginia

The June meeting of the Neuropsychiatric Society of Virginia was held at the Academy of Medicine Auditorium, Twelfth and Clay Streets, Richmond, at 2 p. m. Wednesday, June 18. The following program was presented:

Psychodynamic Aspects of War and Extenuating Crises—Dr. Howard R. Masters, Richmond.

A Description of the Rorshach Experiment—Dr. James B. Funkhouser, Marion, Va.

Psychoses Amongst Students Requiring Hospitalization—Dr. O. B. Darden, Richmond.

Psychotherapy in Children—Dr. Leo Kanner, Associate Professor of Psychiatry, Johns Hopkins Hospital, Baltimore.

Buncombe County Medical Society

On June 2 Dr. Karl Schaffle presented a paper on "Pulmonary Hemorrhage" before the Buncombe County Medical Society. The discussion of the paper was opened by Dr. S. M. Bittinger and Dr. I. R. Wagner. Following the meeting a motion picture was shown. On June 16 the Buncombe County Medical Society were the guests of the Biltmore Dairy Farms at a barbecue dinner. After the dinner a scientific program was presented by the doctors of veterinary medicine of Biltmore.

Forsyth County Medical Society

The Forsyth County Medical Society met at the City Memorial Hospital, Winston-Salem, on June 11. Dr. R. L. Wall spoke on "The Choice of an Anesthetic"; Dr. G. C. Cooke gave a paper on "Spinal Anesthesia"; and Dr. John A. Rose gave a brief talk on the Winston-Salem Child Guidance Clinic.

Mecklenburg County Medical Society

The Mecklenburg County Medical Society held its last meeting of the summer on June 3. Dr. J. G. Johnston gave a paper on "Sub-Conjunctival Injections in Diseases of the Eye", and Dr. Roy B. McKnight spoke on "The Goitre Problem".

Asheville Mental Hygiene Clinic

The first Mental Hygiene Clinic to be held in Asheville was conducted by Dr. D. J. Sullivan recently. The movement resulted from the recent visit of Dr. James Watson, of the State Board of Charities and Public Welfare. Dr. C. N. Sisk and Dr. Margery Lord are on the committee.

The National Foundation For Infantile Paralysis

One of the many responsibilities that the National Foundation for Infantile Paralysis has assumed as an invaluable aid to infantile paralysis patients in the acute stages is the free distribution of Toronto splints and Bradford frames in epidemic areas and to indigent persons, regardless of age, who may need them. Over 3,000 of these appliances have been used during the past two years and our central supply depot in New York City is ready to meet any future deserving requests for these splints and frames.

There is no charge for these splints and frames except expressage and they can be obtained upon the request of any County Chapter officer or responsible person in the medical profession. Address all correspondence to the National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York.

Rejections at the Induction Station, Fort Bragg

The leading causes for rejections at the induction station for May, 1941, are shown in the table below. The rejection rate for white registrants appears to be approaching an optimum.

	May 1941		
	White	Colored	Total
Number Examined	915	1248	2163
Number Rejected	81 (8.7%)	246 (19.7%)	327 (15%)
1. Venereal Disease	4	125	129
G. C.	(3)	(119)	(122)
Chancroid	(0)	(4)	(4)
Chancre	(1)	(2)	(3)
2. Insufficient Vision	16	23	39
3. Pes Planus	5	19	24
4. Otitis Media, Chr. Sup.	13	4	17
5. Insufficient Teeth	6	4	10
6. Hernia, Inguinal	3	6	9
7. Varicose Veins	6	1	7
8. Pulmonary Tuberculosis	0	6	6
	53	188	241

News Notes

Several North Carolina doctors appeared on the program of the A.M.A. meeting in Cleveland. Dr. E. C. Hamblen of Durham gave a paper on the "Uses and Limitations of Estrogens in Gynecic Practice" before the Section on Obstetrics and Gynecology. Dr. Julian M. Ruffin of Durham spoke on the "Diagnosis and Treatment of Mild Vitamin Deficiencies" before the Section on Pharmacology and Therapeutics. "An Evaluation of Emotional Factors in Neurodermatitis" by Dr. Maurice H. Greenhill of Durham and Dr. Jacob E. Finesinger of Boston was given before the Section on Nervous and Mental Diseases. Dr. Lenox D. Baker and Dr. Chester H. Waters, Jr., of Durham, gave a paper on "Vitallium Cup Arthroplasty of the Hip" before the Section on Orthopedic Surgery. Dr. John R. Williams of Winston-Salem and Dr. Edwin P. Alyea of Durham were discussants of papers.

Dr. Robert J. Reeves of Duke University had an exhibit on Bronchomycosis, and Dr. Harry Winkler of Charlotte took part in the special exhibits on Fractures and Lame Backs.

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Dr. Raymond S. Crispell, of the Duke Hospital, has been ordered to active duty in the U. S. Navy at the Naval Air Training Station, Pensacola, Florida. He has obtained a year's leave of absence from Duke University, and he reported to Pensacola June 15, 1941.

As a lieutenant commander in the Medical Corps, Dr. Crispell will teach neuropsychiatry and will participate in the research and in the clinical work in psychology and psychiatry at the Naval School of Aviation Medicine. He will also act as neuropsychiatrist to the Naval Dispensary and Hospital at Pensacola, and in these various capacities he will be engaged in the work that has been done for a number of years in the personality studies associated with the selection and with the fitness of naval aviators.

Dr. Paul Ringer, of Asheville, was guest speaker at a meeting of the St. Louis Medical Society. His address, "Prognosis in Pulmonary Tuberculosis", is published in the **North Carolina Medical Journal** this month.

* * *

Dr. William Pitts of Charlotte has been certified by the American Board of Surgery.

* * *

Dr. Robert L. McMillan of Winston-Salem has been certified by the American Board of Internal Medicine.

* * *

Dr. Charles Hartwell Cocke, of Asheville, was unanimously re-elected Chairman of the Board of Governors of the American College of Physicians at its recent meeting in Boston.

* * *

The following doctors from North Carolina were registered at the meeting of the A.M.A. in Cleveland, June 3-6:

Harold J. Abrams, Fort Bragg
Lenox D. Baker, Durham
J. Lamar Callaway, Durham
Williard Cardwell, Greensboro
Verne S. Caviness, Raleigh
V. F. Couch, Winston-Salem
Harry A. Crawford, Fort Bragg
A. McR. Crouch, Wilmington
Richard B. Dunn, Greensboro
Elias S. Faison, Charlotte
J. C. Pass Fearrington, Winston-Salem
Ralph L. Fike, Wilson
Gregory G. Floridis, Fort Bragg
Robert B. Franklin, Mt. Airy
T. T. Frost, Winston-Salem
Lucius G. Gage, Charlotte
Charles Stedman Glisson, Jr., Fort Bragg
Maurice H. Greenhill, Durham
E. C. Hamblen, Durham
William M. Jennings, Fort Bragg
Wingate M. Johnson, Winston-Salem
John P. Kennedy, Charlotte
William L. Kirby, Winston-Salem
R. F. Leinbach, Charlotte
Frank R. Lock, Winston-Salem
A. W. Makepeace, Chapel Hill
E. M. Mann, Moyock
Frank B. Marsh, Salisbury
Wm. deB. MacNider, Chapel Hill
Ross S. McElwee, Statesville
Robert L. McMillan, Winston-Salem
Clement R. Monroe, Pinehurst
Robert P. Morehead, Wake Forest
Edward S. Orgain, Durham
R. B. Outland, Rich Square
Elbert L. Persons, Durham
David M. Pipes, Greensboro
Richard Z. Query, Jr., Charlotte
William T. Rainey, Fayetteville
Robert J. Reeves, Durham
Julian M. Ruffin, Durham
Hillis L. Seay, Huntersville
James Watson, Raleigh
William E. Westcott, Asheville
B. B. Wetchler, Fort Bragg
Harry Winkler, Charlotte.

* * *

The following changes in addresses of members of the North Carolina Medical Society have been received during the past three months.

Dr. Alfred Blumberg, from Asheville to Box 706, Morganton.
Dr. W. A. Brewton, from Enka to Fort Jackson, S. C.
Dr. C. S. Britt, from Charlotte to Beaufort, S. C.

Dr. Raymond S. Crispell, from Duke University to Dispensary, N.A.S., Pensacola, Fla.
Dr. J. P. Davis, from Winston-Salem to Station Hospital, Fort Livingston, La.
Dr. W. D. Farmer, from Durham to Box 1227, Greensboro.
Dr. W. H. Flythe, from Norwood to Washington
Dr. N. A. Fox, from Greensboro to Fort Screven, Georgia.
Dr. G. C. Godwin, from Sanatorium to Roanoke Hospital, Roanoke, Va.
Dr. W. D. Hall, from State Hospital, Raleigh, to Roanoke Rapids.
Dr. F. T. Harper, from Sanatorium to Burlington.
Dr. I. E. Harris, Jr., from Durham to 2908 Stratford Road, Columbia, S. C.
Dr. O. J. Hart, from Winston-Salem to Station Hospital, Camp Beauregard, Alexandria, La.
Dr. Felda Hightower, from Raleigh to Winston-Salem.
Dr. Albert F. Lee, from Duke Hospital to Maynard Hospital, Seattle, Wash.
Dr. G. M. Leiby, from Raleigh to District Health Department, Washington, D. C.
Dr. W. G. Lewis, from Fort Benning, Ga., to Camp Blandnig, Fla.
Dr. J. S. Liverman, from Winterville to Lexington, S. C.
Dr. L. B. Miller, from Raleigh to 123 Elsmere Place, San Antonio, Texas.
Dr. P. R. MacFadyen, Jr., from Concord to Rockingham.
Dr. George A. Sotirion, from Cincinnati, Ohio, to Duke Hospital, Durham.
Dr. Roy C. Tatum, from Fort Bragg to First Military Area, Knoxville, Tenn.
Dr. H. M. Vann, from Wake Forest to Bowman Gray School of Medicine, Winston-Salem.

Dr. Alonzo Myers announces the removal of his offices to Suite 424 Professional Building, Charlotte, N. C.

The Holland-Rantos Company have been appointed exclusive distributors for Rantex, the newest development for surgical masks and caps—a patented fibre product which is insoluble in live steam, boiling water or common solvents. A magnification of Rantex shows that it is 176 times more protective than a single layer of gauze. As a result, it provides masks and caps which are exceptionally cool, comfortable, light and free from irritating lint or yarn. They are inexpensive enough to be discarded after a single use; yet they can be autoclaved or sterilized.

The masks are shaped to fit the face; the caps are well tailored. The masks and caps are already being used in many hospitals—including Doctors Hospital in New York, University of Pennsylvania Graduate Hospital in Philadelphia, United States Marine Hospital in Boston, Wisconsin General Hospital, University of Wisconsin in Madison, Wisconsin, and the East Oakland Hospital in Oakland, California.

New Searle Laboratories to be Built at Skokie, Ill.

The well-known pharmaceutical manufacturing house of G. D. Searle and Co., Chicago, announce that work has been started on the building of their new laboratories and plant, which are located on the outskirts of Chicago, in the Skokie district.

AUXILIARY

A Message from the President

Nature provides periods of rest for all living things. In successive cycles there are seasons for action and growth and seasons when growth is dormant. We do well as human beings to follow Nature's example—to enjoy a period of rest and relaxation during the summer months when initiative is low; to lay aside as many responsibilities as possible; to clear our minds of controversy and confusion. We may then return to our duties in the fall refreshed and renewed, both physically and mentally.

It is for this reason that I shall only briefly mention future plans for the Auxiliary to the Medical Society of the State of North Carolina. These will involve work on the part of all members of the Auxiliary and work has no place in our summer vacation if it can be avoided. Suffice it to say that these plans will take shape during the summer months as the officers of the Auxiliary jog along, doing a little correspondence on the side.

Our program for the coming season assumed very promising proportions when the councillors met with the new and retiring presidents of the State Auxiliary following the annual meeting in Pinehurst in May. A spirit of willingness and cooperation was shown at that meeting which will have far-reaching effects this fall—a spirit which will touch the wife of every doctor belonging to the State Medical Society. If the determination of the officers of the Auxiliary prevails, there will eventually be an auxiliary in every county in North Carolina having an organized county medical society. For the program of the Auxiliary is expanding in ever widening circles; its appeal cannot be escaped by any doctor's wife concerned with her husband's career.

The Auxiliary is carrying the fight against regimentation to the most telling sources. Under the guidance of the American Medical Association it is teaching its members where, when and how to speak against socialized medicine in informal conversation (how insidious is the grapevine system!) and how to obtain authorized medical speakers for women's lay groups.

In addition to presenting the attitudes and aims of the American Medical Association on the national health issues, the Auxiliary has a complete program designed to spread

the gospel of preventive medicine by acquainting the public with the means of acquiring authentic information on health. Members throughout the United States have pursued a program of study and action in behalf of cancer control, tuberculosis, maternal and child health, milk supply in local counties, syphilis, immunization, communicable diseases and care of crippled children. It is significant that the most popular subjects with Auxiliary members during the past year, however, were the Wagner Health Bill and other medical legislation.

In North Carolina the Auxiliary program is enlarged to include philanthropies. The doctors' wives maintain two beds in State tubercular sanatoriums; they are raising a ten thousand dollar endowment fund for the oldest of these beds and are maintaining a Student Loan Fund which is constantly in use by sons and daughters of doctors for whom it was designed, to aid in completing college educations in instances when this might otherwise have been impossible.

Lives there a doctor who would deny the necessity of any branch of this program? The answer is obvious. We would therefore ask every member of the Medical Society of the State of North Carolina to take a personal interest in our organization, to urge their wives to membership when we resume activities in October. If a doctor has no wife we will welcome any representative of his choice—a mother, a sister, a daughter. Only *one* requirement, doctors — she must be a woman zealously interested in American medicine for the American way of life and willing to learn how and where she may best serve its interests!

MRS. SIDNEY SMITH, *President*
Auxiliary to the Medical Society
of the State of North Carolina.

For Shy, Nervous, Retarded Children

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Mrs. J. Bascom Thompson, Principal

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BOOK REVIEWS

Textbook of Pediatrics... Third Edition. By J. P. Crozer Griffith, M.D., Ph. D. Emeritus Professor of Pediatrics, University of Pennsylvania; and A. Graeme Mitchell, M.D., B. K. Rachford Professor of Pediatrics, College of Medicine, University of Cincinnati. 991 pages, with 220 illustrations. Price, $10.00. Philadelphia: W. B. Saunders and Co., 1941.

This textbook represents a revision of the authors' previous volume **Diseases of Infants and Children.** The new title, **Textbook of Pediatrics,** emphasizes the authors' belief that the care of children embraces much more than the study and care of children's "diseases". This volume, published just before the recent death of Dr. Mitchell, was completely revised by him, and the various sections were submitted for criticism to an imposing group of authorities listed in the front of the book. Much new material has been added, including an excellent, although short chapter on mental development and a new section on poisoning.

The sections dealing with nutrition and infant feeding have been rewritten and brought in line with the latest knowledge in regard to nutritional requirements, including vitamin therapy. A valuable series of tables show the essential differences in most of the proprietary foods and milk preparations with which one deals in feeding infants.

An outstanding feature of this textbook is the numerous clear tables and figures. Those on physical and mental growth are particularly valuable as a guide to the individual appraisal of growth and development.

This book is very complete in that it discusses all phases of the normal and abnormal child. Although it is hard to agree with the authors that a 991 page book is "streamlined", the one criticism that can be made is that in the desire to make the textbook complete in one volume, discussions of certain subjects have been made too brief. However, as a textbook, it should prove to be very valuable for practicing physicians as well as for medical students.

The Doctor and the Difficult Child. By William Moodie, M.D., F.R.C.P., D.P.M., Medical Director, London Child Guidance Clinic and Training Clinic. 214 pages. Price $1.50. New York: The Commonwealth Fund, 1940.

With the increasing emphasis placed upon the recognition and treatment of behavior problems in children it is refreshing to have such a book upon the subject as Dr. Moodie's. His long experience in dealing with difficult children guarantees that it is authoritative. It is written in the simple, chatty, conversational style which the cultured Englishman uses so well. The object of the book is expressed by the author in the introduction: "This is not a scientific treatise; it is rather an informal discussion of fundamental disturbances of behaviour or personality in children and how they can be recognized, investigated and treated." The author lives up to this promise so well that the book can be recommended to any doctor who wants to learn more about dealing with the various problems of childhood.